

State Compendium - Region 4

Programs and Regulatory Activities Related to Animal Feeding Operations

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CHAPTER 1. INTRODUCTION

This compendium has been developed to support the U.S. Environmental Protection Agency's (EPA) efforts to address the environmental and public health problems associated with animal feeding operations (AFOs) and concentrated animal feeding operations (CAFOs). The compendium is a compilation of AFO-related state program and state initiative information intended to illustrate how states are regulating AFOs, with a specific focus on the use of permits or similar mechanisms. This document is not intended as an evaluation of the effectiveness of individual state efforts.

Most of the State programmatic and regulatory information gathered and presented in this document pertains to controlling water quality impacts from AFOs. Although some states have designed regulatory standards to control non-water quality impacts (e.g., setback requirements for odor control), the vast majority of information presented is based on state efforts to address water quality and nutrient management issues.

The *Compendium* has been compiled from a number of publicly available information sources, including:

- Previously published research and existing surveys of State AFO and CAFO programs
- World Wide Web pages of state governments, agencies, and national agriculture organizations
- Select publicly accessible state statutes and regulations (generally accessed via the Web)
- National Pollutant Discharge Elimination System (NPDES) permits developed for CAFOs
- Summaries of State program information provided by EPA regional offices

Based on these sources of publicly available information, the *Compendium* represents a reasonable appraisal of how states are addressing AFO-related environmental problems. Nevertheless, the information presented here is subject to several important limits. First, in compiling this compendium no new formal survey of the states was conducted, nor was a comprehensive review of each state's regulations undertaken, as both were beyond the scope of this task. Thus, in some instances information presented here may be limited or minor gaps may exist. Second, state regulation of AFOs and CAFOs can be complex, involving both federal and state laws and regulations, often originating at the state level from several different agencies, with numerous variations in approaches, requirements, and jurisdiction among the different states. Consequently, different levels of information may be available among states and even between relevant agencies within a state. Finally, the various sources of publicly available information used were reviewed and compiled over a period of time during which many States were reexamining and revising their AFO regulations. As a result, this compendium is by necessity a working document that depicts reasonably current practices, but may in some instances be superseded by recent state programmatic and regulatory changes. The information presented here must be considered subject to these limits and specific regulatory requirements should be verified with state or EPA authorities as appropriate.

The *Compendium of State AFO Programs* consists of four chapters, including this introduction, and three Appendices. Chapter 2 of this document provides a national overview of State AFO initiatives based on the publicly available data. It attempts to summarize how states regulate

AFOs and highlights key aspects of State AFO programs.

Chapter 3 presents individual state profiles. Each profile includes available information addressing: background, lead regulatory agency, state regulations regarding AFO/CAFOs, types of permits, permit coverage, permit conditions, enforcement information, state voluntary programs, additional state-specific information, and references.

Finally, the *Compendium* contains three Appendices. Appendix A describe methods used to develop the *Compendium* and highlights the limits of the data collection efforts. Appendix B lists some of the more frequently used acronyms. Appendix C provides a glossary of useful terms associated with animal feedlots.

CHAPTER 2. NATIONAL SUMMARY OF STATE INITIATIVES

This chapter presents a national overview of state AFO regulatory programs and initiatives based on a review of publicly available data. The discussion begins with a brief review of the respective federal and state roles in administering the National Pollutant Discharge Elimination System (NPDES) program (Section 2.1), followed by a summary of the federal regulations addressing AFOs and CAFOs (Section 2.2). The remainder of this chapter summarizes State Programs/Initiatives (Section 2.3) and Recent State Initiatives/Trends (Section 2.4).

2.1 Overview of EPA/State Roles in NPDES Program

Under the Clean Water Act (CWA), NPDES permits may be issued by EPA or any state authorized by EPA to implement the NPDES program. Currently, 44 states are authorized to administer the base NPDES program.¹ (The base program includes the federal requirements applicable to AFOs and CAFOs, which are discussed below).² To become an authorized NPDES state, the requirements imposed under a State's NPDES program must at a minimum be as stringent as the requirements imposed under the federal NPDES program. The states, however, may impose requirements that are broader in scope or more stringent than the requirements imposed under the federal NPDES program. In states not authorized to implement the NPDES program, the appropriate EPA Regional office is responsible for implementing the NPDES program.

Regarding the regulation of AFOs, 44 of the states authorized to implement the NPDES program have some form of program requirements generally deemed to be as stringent as the federal requirements applicable to AFOs. Yet, it appears that only a handful of states rely solely on their State NPDES regulations to address CAFOs. Rather, most use their NPDES regulations as one part of their CAFO program and supplement these requirements with additional provisions.

Because the federal CAFO regulations constitute the core program requirements in many authorized states and are used for purposes of comparison and summary in this document, these regulations are briefly summarized below.

2.2 Overview of EPA AFO/CAFO Definitions and Effluent Limits, Under the Federal NPDES Program

Under the federal NPDES program, EPA has developed regulations that define which facilities constitute AFOs and which constitute CAFOs. Under these regulations, facilities that constitute CAFOs are defined as point sources for purposes of the NPDES program. No facility may discharge pollutants from a point source to waters of the United States without a NPDES permit.

¹ State NPDES authorization may be obtained for the base program, as well as for components addressing federal facilities, pretreatment, general permits, and sludge. The Virgin Islands is also authorized to administer the NPDES program.

² Alaska, Arizona, Idaho, Massachusetts, New Hampshire, and New Mexico are not authorized to implement the NPDES program. Oklahoma is delegated to implement the NPDES program, however; Oklahoma does not issue a general NPDES permit specifically for CAFOs and is in effect unauthorized to administer the CAFO portion of the NPDES program. Oklahoma CAFOs should apply for coverage under the general NPDES CAFO permit issued by U.S. EPA Region 6 (See 63 FR 53002).

The existing federal regulatory definitions of AFOs and CAFOs are provided at 40 *C.F.R.* § 122.23 and Part 122, Appendix B. These regulations define an AFO as a facility that meets the following criteria:

- Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period.
- Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.³

Federal regulations define a CAFO generally as an animal feeding operation that:

- Confines more than 1,000 animal units (AUs)⁴, or
- Confines between 301 to 1,000 AUs and discharges pollutants:
 - ▶ Into waters of the United States through a man-made ditch, flushing system, or similar man-made device, or
 - ▶ Directly into waters of the United States that originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

The CAFO regulatory definition also provides that facilities that discharge pollutants only in the event of a 25-year, 24-hour storm event are not defined as CAFOs.

Under existing federal regulations, the permitting authority (e.g., EPA or an authorized state) can designate an AFO as a CAFO upon determining that the operation is a significant contributor of pollution to waters of the United States. This determination, which takes a number of factors into account (e.g., slope, vegetation, and the proximity of the operation to surface waters), is based on an onsite inspection by the agency that issues the permits and is subject to certain discharge conditions.

In addition to the provisions that define AFOs and CAFOs, EPA has promulgated an effluent limitation guideline (ELG) applicable to feedlots (feedlots are defined in the same manner as CAFOs) (see 40 *C.F.R.* § 412). This regulation generally establishes that CAFOs are subject to a zero discharge standard except for discharges, resulting from a catastrophic or chronic storm event, that occur from a properly maintained and operated waste management system designed to control waste and runoff from a 25-year, 24-hour storm.

2.3 State Programs/Initiatives

³ 40 *CFR* 122.23 (b)(1).

⁴ The following examples are animal quantities equivalent to 1,000 animal units: 1,000 slaughter and feeder cattle, 700 mature dairy cattle, 2,500 swine each weighing more than 25 kilograms, 30,000 laying hens or broilers (if a facility uses a liquid manure system), and 100,000 laying hens or broilers (if a facility uses continuous overflow watering). See 40 *CFR* Part 122, Appendix B.

The national summary of state programs and initiatives is divided into four categories: (1) regulatory programs used by states, (2) State definitions of CAFO/AFO, (3) use of general versus individual permits, and (4) key permit conditions.

2.3.1 Regulatory Approach

Figure 1 provides a state-by-state depiction of the AFO permitting mechanisms available in each state. States have five categories of permitting mechanisms:

- Federally Administered NPDES Program
- Federally Administered NPDES Program and State Administered Non-NPDES Program
- State Administered NPDES Program only
- State Administered NPDES Program and State Administered Non-NPDES Program
- State Administered Non-NPDES Program only

As discussed above, 44 states are authorized to implement the base NPDES CAFO program. As illustrated in Figure 1 and summarized in Table 1, of the 44 states authorized to implement the NPDES CAFO program:

- Thirty-two states administer a State NPDES CAFO program in combination with some other state permit, license, or authorization program. Typically, this additional State authorization is a construction or operating permit.
- Seven states regulate CAFOs exclusively under their state NPDES authority (HI, NJ, NV, NY, RI, TN, WV).
- six states have chosen to solely regulate CAFOs under State non-NPDES programs (CO, MI, NC, OR, SC, VA).

Of the six states not authorized to administer the NPDES program:

- Three rely solely on federal NPDES permits to address CAFOs (AK, MA, NH).
- Three impose some form of a state non-NPDES program requirement, although EPA remains responsible for administering the NPDES CAFO requirements in these states (AZ, ID, NM).

While Oklahoma is one of the 44 NPDES-delegated states, Oklahoma does not have a general NPDES permit specific to CAFOs. In this special case, Region 6 administers the portion of Oklahoma's NPDES program that deals with CAFOs by covering Oklahoma CAFOs under the Region 6 general NPDES permit for CAFOs. Oklahoma also uses a State non-NPDES operating permit to regulate state CAFOs.

Overall, 28 states have a combination of permitting mechanisms available for addressing environmental impacts from AFOs. Eleven states exclusively regulate CAFOs under a state or federal NPDES program. Five states (CO, MI, NC, SC and OR) only regulate AFOs under a

state non-NPDES program, with Colorado and Michigan not requiring any AFOs to obtain any form of operating permit.

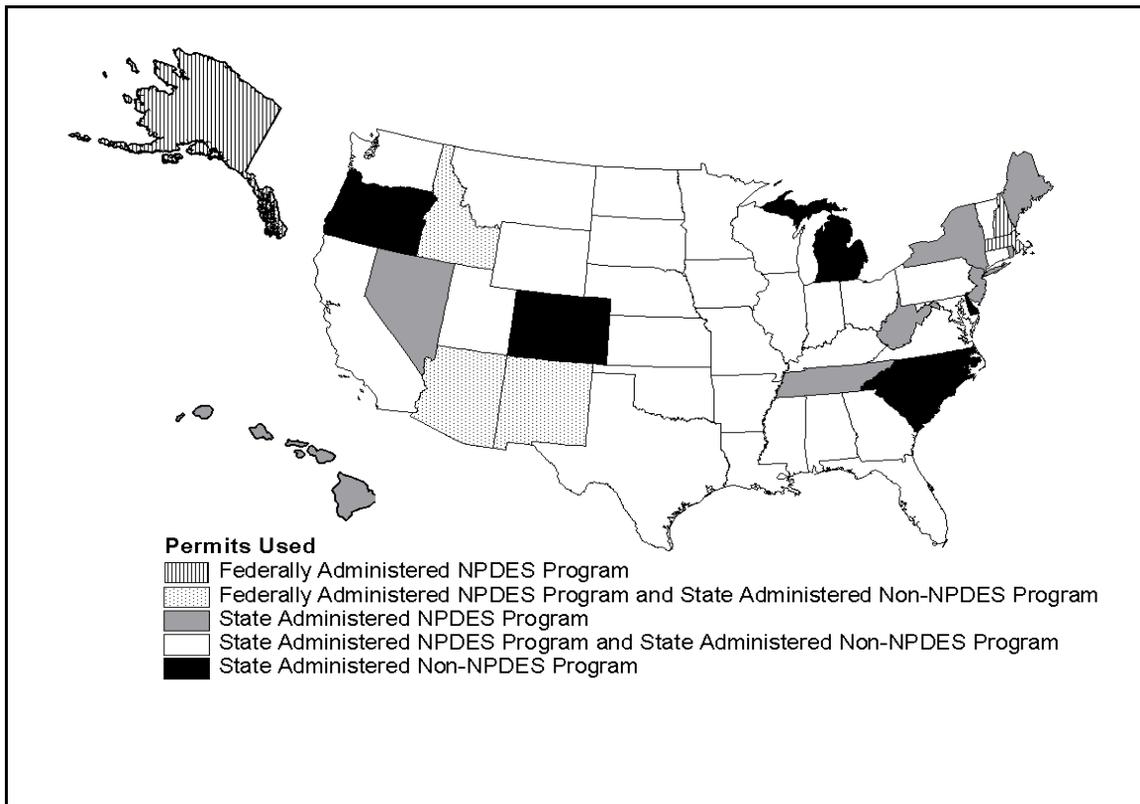


Figure 1. Regulatory Mechanisms for AFO Permitting in Each State

2.3.2 State Definitions of CAFO

EPA and state definitions of a CAFO are important because the definitions determine the scope of the existing federal and state regulatory programs. EPA's definition of a CAFO is based on the length of time animals are confined, the number of animals confined (animal units), and whether or not the facility directly discharges pollutants into waters of the United States. Virtually all state NPDES CAFO programs use the federal definition for CAFO. The vast majority of states also use the federal definition of CAFO for State non-NPDES CAFO programs. Several states, however, use a lower numeric threshold (number of animal units) for non-NPDES permitting. For example, Minnesota issues individual NPDES permits to confined feeding operations as defined by federal regulation and State feedlot permits (non-NPDES) to facilities with more than 10 animal units (calculated by using the formula used in the federal definition).

States that use the federal definition of CAFO may also increase the scope of coverage required through state NPDES programs by reducing the number of animals (number of animal units) a facility can confine before being subject to permitting.

Table 1. Identification of Permit Type and Permit Requirements Within State AFO Programs in the United States¹

State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite
AL	✓	✓	✓	✓	✓			✓	✓	✓	
AK	ND ⁵										
AR	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
AZ	ND		✓	✓		✓				✓	
CA	✓	✓	✓	✓		✓	✓	✓		✓	
CO	*	✓	✓				✓	✓	✓	✓	
CT	✓	✓			✓		✓	✓	✓	✓	
DE	✓		✓						✓		
FL	✓	✓	✓		✓			✓	✓	✓	
GA	✓		✓	✓	✓		✓		✓	✓	
HI	✓				✓						
IA	✓	✓	✓		✓		✓	✓	✓	✓	✓
ID	ND	✓	✓	✓			✓	✓	✓	✓	✓
IL	✓	✓	✓	✓	✓		✓	✓	✓	✓	
IN	✓	✓	✓		✓				✓	✓	
KY	✓	✓	✓			✓	✓	✓	✓	✓	✓
KS	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓

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State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite
LA	✓		✓		✓		✓	✓	✓		
MA	ND										
MD	✓	✓	✓	✓	✓		✓	✓	✓	✓	
ME	✓		✓		✓			✓	✓	✓	✓
MI	*										
MN	✓	✓	✓		✓		✓	✓	✓	✓	
MO	✓	✓	✓	✓	✓		✓	✓	✓	✓	
MS	✓		✓	✓	✓	✓	✓	✓			
MT	✓	✓	✓	✓	✓	✓	✓	✓		✓	
NE	✓	✓	✓		✓		✓	✓	✓	✓	
NC	*		✓			✓	✓	✓	✓	✓	
ND	✓	✓	✓		✓		✓	✓	✓	✓	
NH	ND										
NJ	✓				✓					✓	
NM	ND		✓				✓		✓	✓	
NV	✓				✓						
NY	✓			✓	✓			✓	✓	✓	

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State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite
OH	✓	✓	✓	✓	✓		✓	✓	✓		
OK	✓	✓	✓	✓	✓		✓	✓	✓		
OR	*	✓	✓			✓	✓			✓	
PA	✓		✓	✓	✓			✓	✓	✓	✓
RI	✓				✓						
SC	*	✓	✓			✓	✓	✓	✓	✓	
SD	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
TN	✓			✓	✓			✓	✓	✓	
TX	✓		✓	✓	✓		✓	✓	✓	✓	
UT	✓	✓	✓	✓	✓		✓		✓		
VA	✓		✓			✓	✓	✓	✓	✓	
VT	✓	✓					✓	✓	✓	✓	
WA	✓		✓	✓	✓	✓	✓	✓	✓	✓	
WI	✓	✓	✓	✓	✓			✓	✓	✓	
WV	✓							✓	✓	✓	
WY	✓	✓			✓		✓	✓	✓	✓	
Totals	38	27	36	20	32	12	31	35	38	40	8

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State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite

¹ Blank data cells indicate that the program element was not a primary component of the state program or information was not sufficient to make a determination.

² State control mechanisms include all forms of formal state approval required to construct or operate an AFO, such as state issued non-NPDES permits, letters of approval, and certificates of coverage.

³ Permit conditions are requirements imposed through either NPDES or state non-NPDES programs.

⁴ Effluent limits refer to whether or not a state imposes federal effluent limits to AFOs/CAFOs (i.e., no discharge allowed except during 25 year, 24- hour storms). A check could indicate that a state imposes effluent limits that are more strict than the federal requirements (e.g., Arkansas does not allow any discharges regardless of storm events).

⁵ ND = States not authorized to administer the NPDES program.

* Although authorized to administer the NPDES program, the state chooses to use a separate program to address AFOs.

Some states have unique definitions for their livestock regulatory programs that do not follow the federal definition (See Table 2). States typically base their definition on number of animals confined, weight of animals and design capacity of waste control system, or gross income of agricultural operation. These definitions are exclusively applied to State non-NPDES programs.

Table 2. Selected State CAFO Definitions that Differ from the EPA Definition and Use of the Definition in Regulatory Control

State	Classification Scheme	Facilities Subject to State Non-NPDES Regulatory
Indiana	Number of animals	Operation with 600 swine, 300 cattle, or 30,000 birds
Iowa	Weight of animals in a confinement feeding operation	Permitting threshold for construction permit based on type of waste control system and design capacity (based on weight) of that system (e.g., an anaerobic lagoon with a design capacity of 400,000 lbs of bovine requires construction permits)
Kansas	Number of animals	Operations with 300 animal units
Maryland	Gross income and animal units	All agricultural operations with incomes of at least \$2,500 or eight animal units
North Carolina	Number of animals	Operations designed for 100 head of cattle, 75 horses, 250 swine, 1,000 sheep, or 30,000 birds

One important difference between state livestock regulatory programs and the federal program is that numerous states have addressed the issue of authority to issue permits (or other control mechanisms) to CAFOs by requiring that all or a specified subgroup of CAFOs regardless of whether they have a direct point source discharge of pollutants to U.S. waters obtain a permit.⁵ This requirement is imposed under state, not federal regulations.

For example, Arkansas requires all AFOs that use a liquid waste management system to obtain permit coverage under either the State-issued general permit or an individual permit. AFOs with dry waste management systems are not automatically required to obtain a permit; however, all facilities with more than 1,000 animal units are subject to coverage under the State’s general permit. This is an important distinction because states have opted to expand the scope of facilities that fall within the definition of a CAFO by eliminating the requirement that a facility must have a discharge before being considered a CAFO. In other words, states are requiring large facilities with a potential to discharge to abide by CAFO rules.

2.3.3 General/Individual Permits

The regulation of CAFOs is challenging, in part, because of the large number of facilities across the country. In 1995 it was estimated that 450,000 operations nationwide confined or concentrated animals, of which a very conservative estimate indicated that at least 6,600 had

⁵ Preliminary data indicate that the following states require all or a subset of CAFOs (under various definitions) to obtain permits: AL, AR, AZ, CO, DE, IA, ID, IN, KS, KY, MN, MS, NC, OH, OR, SC, WY.

more than 1,000 animal units and may have been considered CAFOs under the federal definition⁶. More recent estimates describe an AFO universe of approximately 375,700 operations of which approximately 12,600 are AFO operations with more than 1,000 AUs, 26,500 are AFO operations with 300-1,000 AUs, and 336,600 are AFO operations with fewer than 300 AUs.⁷ One way of reducing the administrative burden associated with permitting such large numbers of facilities is through general permits. Existing regulations provide that general permits may be issued to cover a category of discharges within a geographic region. Within such areas, general permits may regulate either storm water point sources or a category of point sources that involves similar operations with similar wastes. Operations subject to the same effluent limitations and operating conditions, and requiring similar monitoring, are most appropriately regulated under a general permit. EPA and the states are using general permits to regulate CAFOs, and this trend appears to be increasing. South Dakota, for example, has established two general permits for CAFOs, one to address swine operations and another for all other livestock.

Of the 44 states authorized to implement the NPDES program:

- Twenty have issued a State NPDES general permit for CAFOs (this number excludes federally issued general permits).
- Twelve have issued a state non-NPDES general permit for CAFOs.

Of the six states not authorized to administer the NPDES program (this excludes Oklahoma), four are subject to a federal general permit.⁸

2.3.4 Permit Conditions

Normally, a NPDES permit will include several types of permit conditions, including technology-based effluent limits (i.e., zero discharge except for discharges resulting from chronic or catastrophic rainfall events if a facility is designed to hold process wastewater and runoff from a 25-year, 24-hour storm for CAFOs subject to § 412), water quality-based effluent limits (if the technology-based limit will not ensure compliance with State water quality standards), monitoring and reporting conditions, special conditions (e.g., conditions that impose additional controls beyond numeric limits, such as best management practices [BMPs]), and standard conditions (e.g., duty to comply, duty to ensure proper operation, and duty to provide information).

The federal technology-based effluent limit for CAFOs is “no discharge.” The effluent limit includes an exception in the event of chronic or catastrophic rain for facilities that have been

⁶ *Animal Agriculture: Information on Waste Management and Water Quality Issues*, General Accounting Office, 1995.

⁷ 66 *FR* 2985, January 12, 2001.

⁸ CAFOs in New Mexico and Oklahoma are subject to an EPA Region 6 general permit; facilities in Idaho and Alaska are subject to an EPA Region 10 permit, although no facilities are covered under a NPDES permit in Alaska; and CAFOs in Arizona are subject to an EPA Region 9 general permit, although no facilities are covered under the general permit. New Hampshire, and Massachusetts are located in EPA Region 1, which does not have a general NPDES permit for CAFOs.

designed, constructed, and operated to contain all waste water and runoff from a 25-year, 24-hour storm. States not authorized to implement the NPDES program must use this federal effluent limit.

Authorized states generally are equally as stringent, but may be more stringent. Based on a review of available data, of the 44 states authorized to implement the NPDES program 34 use the federal effluent limitation guideline and 6 use a more stringent limit.

Some states with more stringent effluent limits may partially or totally prohibit discharges related to storm events. In Arkansas, for example, the effluent limit prohibits discharges from liquid waste management systems, including periods of precipitation greater than the 25-year, 24-hour storm event. California requires no discharges from new waste control structures even during 100-year storms. And in Iowa, confinement feeding operations (i.e., roofed AFOs) are prohibited from any direct discharge and must dispose of manure in a manner that will not cause a pollution of surface or ground water.

A key concern regarding the management of CAFO waste is ensuring appropriate land application. Land application is the primary management practice used by CAFOs to dispose of animal waste. Several estimates indicate that 90 percent of CAFO-generated waste is land applied. Where properly done, land application of CAFO waste fosters the reuse of the nitrogen, phosphorus, and potassium in these wastes for crop growth. However, where such wastes are excessively or improperly applied, land application can contribute to water quality impairment. Thirty-four states impose requirements addressing land application either through NPDES or non-NPDES programs. Typical requirements include that CAFO waste be applied at agronomic rates and that CAFO operators develop Waste Management Plans.

The breakout of state requirements is as follows:

- Forty states require that CAFO waste be land applied at agronomic rates.
- Thirty-eight states require the development and use of Waste Management Plans.
- One state, Georgia, issues land application system (LAS) permits.

Agronomic rates are typically based on the nitrogen needs of crops, although some states specify that waste be applied at agronomic rates for nitrogen and phosphorous. The determination of agronomic rates varies from state to state. Some states do not address how agronomic rates should be determined, while others, such as Colorado, require CAFO operators to complete detailed plans and field sampling to determine the appropriate amount of waste that can be land applied.

The complexity and details required in a waste management plan also vary among states. Some states do not explicitly identify what items must be addressed in a waste management plan, whereas others have detailed requirements. Typically, CAFO operators are required to address these items in a waste management plan:

- Estimates of the annual volume of waste.
- Schedules for emptying and applying wastes.
- Rates and locations for applying wastes.
- Provisions for determining agronomic rates (i.e., soil testing).

- Provisions for conducting required monitoring and reporting.
- Written agreements with landowners to accept liquid waste.

2.4 Recent State Initiatives/Trends

One clear indication that states have an increasing interest in expanding their efforts to control water quality impacts from AFOs is the promulgation of new state AFO laws, regulations and program initiatives. At least 28 states have developed new laws or regulations related to AFOs since 1996. For example, Kansas, Kentucky, North Carolina, and Wyoming passed legislation regarding swine facilities, with Kentucky and North Carolina imposing moratoriums on the expansion of swine AFOs until state management/regulatory plans could be developed. Mississippi also has imposed a 2-year moratorium on any new CAFOs.

Alabama's recent efforts include developing an NPDES general permitting rule and a Memorandum of Agreement outlining state agency responsibilities as they relate to AFOs. Washington's Dairy Law subjects all dairy farms with more than 300 animal units to permitting and requires each facility to develop NRCS-approved nutrient management plans. Indiana's Confined Feeding Control Law also requires AFOs to develop waste management plans and receive state approval for operating AFOs.

2.5 Summary

State efforts to manage AFOs are carried out through issuance of NPDES permits and state issued non-NPDES permits and/or authorizations. State AFO regulatory programs are directed in large part at controlling the potential environmental impacts on surface water, but also at protecting ground water and managing industry growth. State permits and/or authorization requirements are often imposed regardless of NPDES requirements. State non-NPDES AFO programs are often more stringent than NPDES programs and state efforts often extend coverage to smaller classes of AFOs. Further, the implementation of state non-NPDES programs often receives more agency attention than the implementation of NPDES programs, with several states actively choosing not to use NPDES permits.

While specific state efforts relating to AFOs vary, most states regulate facilities through permitting programs that require animal waste disposal systems to be constructed to prevent the discharge of animal wastes to waters of the United States. Coverage under state permitting programs depends on such criteria as facility size, potential for discharge, type of facility, and type of waste control. Information indicates that state agencies are increasing their commitment of resources to address environmental concerns from AFOs.

CHAPTER 3. STATE PROFILES

This chapter presents individual profiles of state programmatic and regulatory efforts addressing AFOs for each of the 50 states. These profiles provide a state-by-state summary of the key elements within State AFO regulatory programs. The profiles summarize existing State activities to address environmental and health impacts from AFOs. The profiles provide a comprehensive overview of each State program, including the following:

- A description of the lead regulatory agency(ies) (i.e., permitting authority) and agency(ies) responsible for directing voluntary programs.
- State regulations that address AFOs and voluntary programs that encourage regulatory compliance or the use of best management practices.
- The types of permits issued and the permitting processes for each state, the circumstances for which permits are required (i.e., permit coverage), and the requirements and responsibilities of AFO owners and operators (i.e., permit conditions).
- State enforcement activities, inspection programs, and staffing and funding levels dedicated to addressing AFOs.
- Examples of innovative or interesting state projects or programs to control the potential negative environmental impacts of AFOs.

If information on a particular program element was not readily available, or not identified, the following phrase was used: “no information was found in publicly available sources.” Figure 3.1 presents the outline used for each of the state profiles.

1.0	Background
2.0	Lead Regulatory Agency
3.0	State Regulations Regarding AFOs/CAFOs
4.0	Type of Permits <i>NPDES</i> <i>Other (general use or general agriculture permits, construction permits, and operating permits)</i>
5.0	Permit Coverage (potential nuisance and/or location)
6.0	Permit Conditions <i>Approvals (permits, letters of intent, or certificates of coverage)</i> <i>Lagoon Design and Specifications (seepage limits, etc.)</i> <i>Discharge Rules</i> <i>Waste Management Plans</i> <i>Separation Distances</i> <i>Land Application Requirements</i> <i>Other Requirements</i>
7.0	Enforcement Information <i>General Enforcement Information</i> <i>General Inspection Information</i>
8.0	Voluntary Programs
9.0	Additional State-Specific Information <i>Cooperative Extension Service</i> <i>Comprehensive Nutrient Management Plan (CNMP)</i> <i>Memorandums of Understanding/Agreement (MOUs/MOAs)</i> <i>Other Information</i>
10.0	References

Figure 3.1 Outline for Profiles of State Programs and Regulatory Activities Related to Animal Feeding Operations

Alabama's CAFO Program

1.0 Background

Based upon information provided to EPA by USDA, it is estimated that there are 1,237 AFOs with from 300 to 1,000 animal units and 580 AFOs with more than 1,000 animal units in Alabama. These are primarily in the broiler sector (USDA, 1999; USDA, 2000).

The Alabama Animal Feeding Operation (AFO) National Pollutant Discharge Elimination System (NPDES) compliance program and Concentrated Animal Feeding Operation (CAFO) NPDES permit and compliance program rules address construction, operation, and closure of all AFOs/CAFOs statewide. The program was developed over 3 years with input from the agricultural community, interested state and federal resource agencies, academia, EPA, and environmental groups. EPA recently approved the adopted rules as an amendment to Alabama's NPDES program (Jenkins, 2001).

2.0 Lead Regulatory Agency

The Alabama Department of Environmental Management (ADEM), Water Division, has jurisdiction over industrial water pollution permitting (Jessup 1990). ADEM information can be found at www.adem.state.al.us.

3.0 State Regulations Regarding AFOs/CAFOs

Water quality is governed through Alabama's NPDES Program, ADEM Administrative Code Chapter 335-6-6. Section 335-6-6-.10 identifies CAFOs, detailed in Chapter 335-6-7 and described by Title 40 of the Code of Federal Regulations (CFR), section 122.23 and 40 CFR, Part 122, Appendix B, as a category that requires NPDES permits.

Alabama Administrative Code Chapter 335-6-7 establishes minimum qualifications, standards, requirements, best management practices, land application practices, and waste storage and disposal requirements to protect water quality within the state pursuant to the requirements of the NPDES program. The specific text of Chapters 335-6-6 and 335-6-7 can be found at www.adem.state.al.us/RegsPermit/ADEMRegs/Div6Vol1/rdiv6v1.html.

4.0 Types of Permits

NPDES

Alabama is authorized to issue individual NPDES permits as well as general NPDES permits.

5.0 Permit Coverage

Alabama regulations (ACR Chapter 335-6-6-.10) governing water quality require NPDES permits for CAFOs as described in 40 CFR 122.23, Appendix B (1994) and 40 CFR 122.23(c) (1994) and defined in Rule 335-6-7-.10 and 335-6-7-.03.

The new regulations (ACR Chapter 335-6-7-.03) provide a general NPDES permit for all registered AFOs and CAFOs. The rule requires registration from all CAFOs (AFO facilities with more than 1,000 animal units) and may require registration from some AFOs as generally defined

in 40 CFR 122.23(b)(1). The definition for CAFOs has been extended to include: all AFOs that have had a point source or nonpoint source discharge after April 1, 1999; any new or existing AFO with at least 100 animal units that is located in a priority, threatened, or water quality limited/impaired watershed; or any AFO designated as a significant contributor or potential significant contributor to pollution that violates applicable state water quality standards. Any registered CAFO may be required to apply for and obtain an individual NPDES permit. (ACR 335-6-7.07)

A Notice of Registration (NOR) is required for all new and existing facilities. Approval of registration constitutes NPDES permit coverage as provided in Chapter 335-6-6.

ACR Chapter 335-6-7 applies to the construction, operation, maintenance, repair, and closure of stockyards, auction or buyer yards, facilities, or operations used for cattle, swine, poultry, fowl, and/or dairy animals. The provisions also extend to any other AFOs or facilities for wild or domesticated animals as designated by ADEM.

6.0 Permit Conditions

Approvals

Under the new regulations, initial construction or expansion of an AFO that exceeds 1 acre must be registered under ACR Chapter 335-6-7-.07. The old regulations required registration for exceeding 5 acres.

Lagoon Design and Specifications

Construction of new or expanded manure storage pits or waste/wastewater storage ponds at all AFOs/CAFOs is prohibited unless the owner/operator submits in writing a demonstration acceptable to the director that the use of the storage pits or ponds will protect water quality and will minimize odors to the maximum extent practicable (335-6-7.20(25)).

All design standards must meet or exceed NRCS standards and guidelines, and designs must be approved by a qualified professional (USEPA, 1998). The freeboard cannot be less than 12 inches, and a subsurface soil investigation will be performed to determine the suitability of the waste containment structure to meet liner requirements (ACR Chapter 335-6-7-.25). By January 1, 2003, all lagoons in the North Alabama Area are required to have a 180-day holding capacity. All lagoons in the South Alabama Area are required to have a 120-day holding capacity.

Discharge Rules

Discharge from any AFO to waters of the state are prohibited except in the event of a 25-year, 24-hour storm. (ACR Chapter 335-6-7.25)

Waste Management Plans

All AFOs must implement comprehensive waste management system (WMS) BMPs that meet or exceed NRCS technical standards and guidelines (ACR 335-6-7.04). Operators are required to implement odor and nuisance pest minimization BMPs in the operation of animal waste management systems (ACR 335-6-7.01). Owners and operators of CAFOs must submit their waste management system plans for approval by a Qualified Credential Professional (QCP) and

ADEM before beginning to implement them. The Code of Alabama, Chapter 335, Section 6-7-.02, defines a QCP as:

- Any staff member of the ADEM designated by the director.
- Professional engineer registered in Alabama.
- U.S. Department of Agriculture (USDA)-NRCS representative.
- USDA-NRCS-approved professional.
- Any other qualified professional or professional designation acceptable to the ADEM.

QCPs must have documentation to prove they have training and experience in designing, implementing, and inspecting comprehensive animal waste, waste product, and dead animal disposal management practices and systems plans (§335-6-7.02). The Code of Alabama defines a waste management system plan as a comprehensive plan that meets or exceeds NRCS technical standards and guidelines, NRCS Comprehensive Nutrient Management Plan (CNMP) guidelines, the requirements of the Code of Alabama, Chapter 335, Section 6-7, and applicable requirements of the federal Clean Water Act (CWA).

Separation Distances

According to ACR Chapter 335-6-7.20, animal liquid waste containment structures for new operations must be at least 1,320 feet from the nearest existing occupied dwelling, church, school, hospital, or park and at least 500 feet from any property line. New or additional confinement buildings with lagoons or other animal liquid waste containment structures may not be constructed within 500 feet of an existing offsite potable water well, or within 200 feet of a perennial non-headwater watercourse. In no case may such structures be constructed closer than 500 feet for fewer than 1,000 AUs; 1,320 feet for 1,000 to 2,499 AUs; 2,640 feet for 2,500 to 3,999 AUs; and 5,280 feet for 4,000 or more AUs (ACR 335-6-7.20). Dry waste confinement buildings must not be within 330 feet of occupied buildings or parks. Dry waste confinement buildings also may not be within 165 feet of any property line. Setback distances for other new or additional confinement buildings for dry and/or liquid waste handling, storage, or treatment range from 550 feet from any property line to 100 feet from any stream, pond, lake, well, or water supply (ACR Chapter 335-6-7.20).

No new wells may be constructed within 100 feet of any waste/wastewater handling systems, transport structures, treatment structures, confinement buildings, settling basins, lagoons, holding ponds, sumps, pits, and other agricultural waste containment/treatment structures (ACR 335-6-7-.20).

Waste application near property lines or neighboring occupied buildings must be done in a manner that meets or exceeds NRCS technical standards and guidelines, but in no case may waste application be closer than 100 feet from the nearest occupied dwelling, church, school, hospital, or park (ACR 335-6-7-.26). Waste should not be land applied within 50 feet of surface waters; 100 feet of nonpotable water wells; and 200 feet of waters classified as Outstanding Alabama Water, Outstanding National Resource Water, or Public Water Supply. Aerial or spray irrigation or another type of pumped or pressurized surface land application of wastewater must be done in a manner that meets or exceeds NRCS technical standards and guidelines. In no case may waste application be closer than 500 feet from the nearest occupied dwelling, church, school, hospital, or park. Non-pumped surface application, or soil subsurface injection/application of wastewater, must be done in a manner that meets or exceeds NRCS technical standards and guidelines. In no case may it be closer than 200 feet from the nearest

existing occupied dwelling, church, school, hospital, or park (ACR 335-6-7-.26).

Land Application Requirements

Land application of waste/wastewater (outlined in ACR Chapter 335-6-7-.26) must be performed in accordance with NRCS technical standards. Prohibitions include not applying wastes on frozen soil, near Outstanding Natural Resource Water (ONRW) or surface waters, or on slopes with steep grades. Land application sites must be identified in the WMS plan.

Pollution Prevention Plans

In addition to a WMS plan, CAFO facilities must develop and implement pollution prevention plans (PPPs) in accordance with the EPA storm water rules promulgated on November 19, 1990. The requirements for a PPP are considered to be met by a facility that has been properly designed and has received registration approval under a Notice of Registration (ACR Chapter 335-6-7-.28). Soil sampling (0 to 3 inches in sod crop areas and the depth of the plow layer in cultivated crop areas) is required where waste or wastewater has been land applied (ACR Chapter 335-6-7.26). The sampling frequency should meet NRCS technical standards and guidelines as well as protect the quality of surface water and ground water.

7.0 Enforcement Information

General Enforcement Information

If facilities fail to comply with the requirements of Chapters 335-6-6 and 335-6-7, they may be subject to enforcement actions (specific actions were not specified). Failure to fully implement and regularly maintain BMPs for the protection of water quality and to minimize odors to the maximum extent possible may subject the owner/operator of the AFO to appropriate enforcement action (335-6-7-.04 (1)).

General Inspection Information

Routine inspections will be conducted under the AFO/CAFO program, but the emphasis will be placed on responding to complaints (USEPA, 1998). Any owner or operator of a facility must permit ADEM representatives to enter, at all reasonable times, property and buildings at the facility and allow the representative to inspect facilities and equipment, review records, and to conduct monitoring and sampling (Chapter 335-6-7.17).

Number of CAFO Facilities

As of July, 2000, ADEM had received 266 AFO registrations. Of these, 94 were approved as of July 5, 2000 (ADEM, 2000c).

8.0 Voluntary Programs

The State (Alabama Department of Agriculture) will train operators of CAFO waste systems and reduce CAFO permitting fees for those operators who receive training (Linville, 1997).

9.0 Additional State-Specific Information

Cooperative Extension Service

The Alabama Cooperative Extension System, through Auburn University, takes research-based agricultural knowledge and education from land-grant universities and provides it to the public. More information about the extension system can be found at www.aces.edu.

Comprehensive Nutrient Management Plan (CNMP) Certification

Alabama does not have a CNMP preparer certification program.

Memorandum of Agreement

As part of Alabama's rules, the state developed a Memorandum of Agreement (MOA) outlining the responsibilities of the different state and federal resource agencies as they relate to the management of CAFOs (Linville, 1997).

The final signatories of the MOA include the following:

- Alabama Cooperative Extension System
- Alabama Department of Agriculture and Industries
- Alabama Department of Environmental Management
- Alabama Department of Public Health
- Alabama Soil and Water Conservation Committee
- College of Agriculture at Auburn University
- USDA-NRCS

Other Information

All managing owners, operators, and onsite supervisors of CAFOs must complete formal education and training to receive certification from ADEM. The Operator Certification Program was developed by ADEM in April, 1999, and is implemented by the Department. The program requires operators to take up to 16 hours of approved group or individualized training and continuing education (§335-6-7.18). Key components include:

- Best management practices (BMPs)
- Comprehensive waste and wastewater management
- Land application
- Nutrient budgeting
- Dead animal disposal
- Other appropriate areas

Proof of certification must be submitted to ADEM within one year after enrollment of the program (§335-6-7.18). Also, ADEM must approve initial training requirements, including appropriate curricula, course content, course length, participant testing, evaluation of the effectiveness and applicability of the training, and total hours of training required (§335-6-7.18).

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Florida's CAFO Program

1.0 Background

Based on information provided to EPA by USDA, there are 227 AFOs with 300 to 1,000 animal units and 202 AFOs with more than 1,000 animal units in Florida. These are primarily in the broiler sector (USDA, 1999; USDA, 2000). The state of Florida is authorized to issue NPDES permits.

2.0 Lead Regulatory Agency

The Florida Department of Environmental Protection (DEP) is the NPDES permitting agency regarding CAFOs in Florida. Within DEP, the Division of Water Resource Management and its Agriculture subsection also help regulate CAFOs. Information about DEP and the Division can be found at www.dep.state.fl.us/ and www.dep.state.fl.us/water/, respectively.

3.0 State Regulations Regarding AFOs/CAFOs

Florida's surface water regulations for AFOs/CAFOs are found in the Florida Administrative Code (F.A.C.), Chapter 62-670 (Feedlot and Dairy Wastewater Treatment and Management Requirements), Chapter 62-620 (Wastewater Facility and Activities Permitting), and Wastewater Permit Application Form 2B (Permit to Discharge Wastewater from Concentrated Animal Feeding Operations and Aquatic Animal Production Facilities). The 40 CFR 412 effluent limitations are adopted by reference in Chapter 62-660, F.A.C. Discharges to ground water are regulated under Chapter 62-522, F.A.C. Specific language from Chapter 62-670 can be found at www.dep.state.fl.us/ogc/documents/rules/wastewater/62%2D670.pdf. Florida is working on a strategy to implement the program requirements of EPA's *Unified Strategy for Animal Feeding Operations* (DEP, 2000b).

4.0 Types of Permits

NPDES

Florida is authorized to issue NPDES permits. CAFOs are permitted under the state NPDES program.

5.0 Permit Coverage

Federal animal unit thresholds apply for CAFOs under the state NPDES program. Specific requirements have been established under Florida law for dairies in the Lake Okeechobee and Middle Suwannee River Drainage Basin. Florida regulations state that operations that hold animals below the specified animal unit thresholds may be designated CAFOs on a case-by-case basis if those facilities are found to discharge pollutants into waters of the state directly or through a man-made conveyance (DEP, 1996). Florida's definition of CAFO (Chapter 62-670.200) also specifies that animal feeding operations that are able to contain process wastewater and runoff during a 25-year, 24-hour storm are not considered CAFOs by the state, regardless of the number of animals at the facility (DEP, 1996).

Permits are required for major poultry layer facilities with liquid manure systems or spray irrigation of wastewater. Waste disposal in accordance with an approved Soil and Water

Conservation District Board Plan eliminates the permit requirement for a major poultry layer facility with a dry manure system, provided the wastewater from egg washing is combined with the manure before application. Permits are not required for poultry broiler facilities with dry manure systems.

Florida regulations require all dairies in the Lake Okeechobee Drainage Basin to have permits. Dairies outside the Lake Okeechobee Drainage Basin that have more than 1,000 animal units will be required to apply for a permit in two years under a draft Model Consent Agreement being negotiated with the dairy industry.

6.0 Permit Conditions

Permit conditions are specified under Rule 62-670.500, F.A.C., Requirements for Dairy Farms in the Lake Okeechobee Drainage Basin, and under Rule 62-670.600, F.A.C., and Reference Chapters 373.4595, 403.4595, and 403.067 (Bronson, 2000). Wastewater Treatment for Commercial Egg Production Facilities. In addition, specific conditions can be incorporated into permits issued outside the Lake Okeechobee Drainage Basin, pursuant to Chapters 62-620 and 62-522, F.A.C.

A permit is issued only if the applicant provides reasonable assurance of compliance with applicable rules. All permit applications must be signed and sealed by a professional engineer and accompanied with the appropriate application fee, pursuant to Chapter 471, Florida Statutes, and Chapter 62-4, F.A.C., respectively.

Approvals

No information was found in publicly available sources.

Lagoon Design and Specifications

The volume of dairy lagoons should be designed to hold the storage of runoff from a 25-year, 24-hour storm and be large enough to hold inputs for the longest anticipated period between emptying. The design and construction should conform to the criteria in the local Soil Conservation Service (SCS) Field Office Technical Guide (DEP, 1996).

Discharge Rules

Discharge is allowed under chronic or catastrophic rainfall conditions provided the facility is designed and operated to contain the 25-year, 24-hour storm. The language in 62-670.600 pertaining to wastewater treatment for commercial egg production, however, does state that discharges are prohibited "except in the event of a 25-year, 24-hour storm" (DEP, 1996).

Waste Management Plans

Part of the permit application for a dairy or poultry layer facility requires waste management plan prepared by the NRCS or a private consultant and signed and sealed by a Florida licensed professional engineer. A NRCS plan is also required for unpermitted major poultry layer facilities that combine egg wash wastewater with dry manure before application.

Separation Distances

All dairy farms constructed after June 1987 in the Lake Okeechobee Drainage Basin must maintain specific setback distances between storage and treatment facilities or high-intensity areas and drinking water supply wells (300 feet), natural watercourses (200 feet), and drainage ditches (100 feet). Additionally, the same dairy farms must maintain setback distances from land application areas and drinking water supply wells (200 feet), natural watercourses (50 feet), and drainage ditches (50 feet). In practice, these setback distances are often also used in permits for dairies in other areas of the state. Similar setback distances are required for land application of egg wash wastewater at permitted major poultry layer facilities.

Land Application Requirements

Manure must be applied at agronomic rates. Permits typically require that application be performed in a manner that minimizes impacts to neighbors. For dairies in the Lake Okeechobee Drainage Basin that originated after June 1987 and major poultry layer operations, separation distances are specified between land application sites and wells. At Lake Okeechobee dairies, waste cannot be applied to areas where the water table is less than 18 inches from the land surface.

Other Requirements

Quarterly ground water monitoring is required near unlined storage ponds and land application sites.

7.0 Enforcement Information

General Enforcement Information

Permitted AFOs are inspected at least annually and enforcement is taken for noncompliance. Unpermitted AFOs are inspected in response to complaints and violations are resolved through normal enforcement procedures.

General Inspection Information

Annual inspections and reporting are required for permitted facilities. Florida has developed an EPA-approved CAFO Compliance Assurance Plan to implement EPA's *Unified Strategy for Animal Feeding Operations*. Initiated inspections started in 1999 and plans are to inspect the majority of CAFOs in Florida by 2004, excluding poultry operations with dry manure systems.

8.0 Voluntary Programs

The Florida Department of Agriculture and Consumer Services is the lead agency for voluntary programs.

The voluntary, incentive-based program in the Suwannee River Basin intends to reduce nutrient loadings from AFOs, fertilizer use, septic tanks, and other sources to ground waters and thereby reduce loadings to hydrologically connected surface waters.

9.0 Additional State-Specific Information

Cooperative Extension Service

Florida Cooperative Extension is a partnership between the University of Florida's Institute of Food and Agricultural Sciences (state), the United States Department of Agriculture (federal), and Florida's county governments (county). The Extension Service operates as part of the University of Florida's Institute of Food and Agricultural Sciences (IFAS) and serves each of the state's 67 counties by providing information and conducting educational programs on issues such as sustainable agriculture. More information about the Extension and IFAS can be found at www.ifas.ufl.edu/www/extension/ces.htm and <http://gmv.ifas.ufl.edu/>, respectively.

Comprehensive Nutrient Management Plan (CNMP) Certification

Florida does not have a certification program for comprehensive nutrient management plan preparers. A waste management plan is required for all permitted operations.

Additional Information

The Florida Department of Agriculture and Consumer Services, the Institute of Food and Agricultural Services, and the Water Management Districts are also involved with CAFO regulation in Florida.

The Florida Cattlemen's Association developed a manual in 1999 to help establish sound, responsible guiding principles for cow and calf operations. *Water Quality Best Management Practices for Cow/Calf Operations in Florida* provides specific practices that will help protect water quality from the damaging activities that normally occur with beef and cattle production. (See www.dep.state.fl.us/water/slerp/nonpoint_stormwater/agsrc/docs/fcabmp/fcacbmp.pdf.)

Approximately \$12.6 million was available during the fiscal year 2001 for USDA-NRCS to administer for conservation cost-share programs through programs such as the Environment Quality Incentives Program (EQIP) and the Wetlands Reserve Program (WRP). It has been proposed to initiate the Conservation Reserve Enhancement Program, which could make \$21.4 million per year available for other conservation projects (Bronson, 2000).

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Georgia's CAFO Program

1.0 Background

Based on information provided to EPA by USDA, there are 1,342 AFOs with 300 to 1,000 animal units and 900 AFOs with more than 1,000 animal units in Georgia. These are primarily in the broiler sector (USDA, 1999; USDA, 2000).

2.0 Lead Regulatory Agency

The Environmental Protection Division of the Georgia Department of Natural Resources (www.ganet.org/dnr/environ) administers the rules and regulations of the Water Control Act, including the NPDES program and the land disposal permitting program.

3.0 State Regulations Regarding AFOs/CAFOs

Georgia proposed revisions to the Rules and Regulations for Water Quality Control, Chapter 391-3-6, as of December 23, 1998, to address AFO permit requirements. Additionally, May 1999, Georgia proposed specific revisions to the water quality control regulations under Chapter 391-3-6-.20 to address swine feeding operations. The revisions, state the scope of the new rule for permitting waste disposal by AFOs because such disposal was previously permitted and had no specific provisions. The revisions also establish thresholds for permitting and define the Comprehensive Nutrient Management Plans. Additionally, individual permits may now be required, and AFOs not meeting the CAFO threshold may still be required to obtain a permit.

The revisions to Chapter 391-3-6.20 resulted in a number of changes for swine feeding operations, most specifically involving requirements for permit applications and waste storage and disposal systems.

The owner or operator of an existing, new, or expanding swine feeding operation with 301 to 1,000 AUs must have submitted a registration form to the Division on or before October 31, 2000. By October 31, 2002 the owner or operator must have in operation waste storage and disposal systems, that have been designed and constructed in accordance with NRCS guidance (Chapter 391-6.20(4)).

Existing swine feeding operations with 1,001 to 3,000 AUs must have obtained an individual permit from the Division by October 31, 2000, in accordance with Chapter 391-3-6.20(5). All permit applications should be submitted 180 days in advance.

New or expanding facilities with 1,001 to 3,000 AUs must obtain an individual permit in accordance with Chapter 391-3-6.20(6)(a), submitting their permit application 180 days in advance. Before beginning to feed swine, these facilities must also have in operation waste storage and disposal systems that have been designed and constructed in accordance with NRCS guidance (Chapter 391-3-6.20(6)).

Existing operations with more than 3,000 AUs must have obtained an individual permit from the Division by October 31, 2000, in accordance with Chapter 391-3-6.20(7)(a), submitting the permit application 180 days in advance. If the individual permit was not obtained by October 31, 2000, the operation was stated to be closed or reduced to 1,000 AUs or less. By October 31, 2002, these facilities also must have in operation waste storage and disposal systems that have

been designed and constructed in accordance with NRCS guidance.

For more specific permit requirement information for different sizes of facilities, refer to the July 2000 Chapter 391-3-6 revisions (www.ganet.org/dnr/environ/rules_files/exist_files/391-3-6.pdf). This document contains specific information for various sizes of swine feeding operations, including freeboard, minimum buffer, seepage, monitoring well, and storm event requirements.

A “bad actor” bill allows the Environmental Protection Division to deny permits to operators with poor compliance records in or out of the state (USEPA, 1998).

4.0 Types of Permits

NPDES

Georgia is authorized to administer the federal NPDES Program. Georgia defines a CAFO as any point source that meets the criteria in federal regulations (NASDA Research Foundation, 1997). Animal feeding operations in the state of Georgia that meet applicable design and operating standards and are not discharging to state waters are not required to obtain an NPDES permit. In general, NPDES permits are not commonly issued to CAFOs in Georgia. The proposed Swine Feeding Operation Permit Requirements establish individual NPDES permitting requirements for large (more than 1,000 AUs) facilities.

Other

Depending on the size and type of operation, an AFO may be required to obtain a general or individual land application system (LAS) permit.

5.0 Permit Coverage

Under the Swine Feeding Operation Permit Requirements (Chapter 391-3-6.20), a “permit by rule” (for non-NPDES permits) has been established for facilities that have 301 to 1,000 AUs and do not discharge to surface waters. To protect surface water individual NPDES permits are required for existing or new/expanding swine facilities with 1,000 to 3,000 animal units. To protect surface waters and ground water, individual NPDES permits are also required for facilities with more than 3,000 AUs.

LAS permits are issued to any facility that disposes of pollutants by applying the waste to the surface or beneath the surface of the land. Land disposal systems that use vegetation to remove some pollutants are included. Under the proposed Animal Feeding Operation Permit Requirements, an AFO with more than 1,000 AUs must apply for an individual LAS permit and a facility with fewer than 1,000 AUs may be required to apply for an individual LAS permit. Existing unpermitted AFOs with more than 1,000 AUs must comply with the general LAS permit.

If the land disposal system employs overland flow, subsurface drains, or other techniques that result in a discharge into surface waters, the operator must obtain coverage under an NPDES permit instead of an LAS permit (NASDA Research Foundation, 1997).

6.0 Permit Conditions

Approvals

A site appraisal is required before development, and facilities must be designed according to NRCS standards (NASDA, 1997).

Lagoon Design and Specifications

Waste treatment systems should be designed following NRCS standards. Lagoon seepage is limited to 1/8 inch a day, and the freeboard must be maintained at 2 feet (NASDA, 1997). Lagoons should be designed to hold the runoff from a 25-year, 24-hour storm.

Discharge Rules

No information was found in publically available sources.

Waste Management Plans

Certified Nutrient Management Plans must be submitted to the state.

Separation Distances

No new swine facility with more than 300 AUs can be built within a 100-year floodplain.

Setback requirements vary for new swine facilities with more than 1,000 AUs and the requirements for facilities with more than 3,000 AUs are more strict. For example, new or expanding swine facilities with more than 1,000 AUs must maintain a 700-foot buffer between any public area, whereas similar facilities with more than 3,000 AUs must maintain a 1,750-foot buffer from the same areas (Chapter 391-3-6-.20(6)k and 391-3-6.20(8)j). Waste storage tanks should be at least 1,000 feet from homes of persons other than the CAFO owner. Neighboring property lines must be 150 feet from the waste treatment facility (NASDA, 1997; NASDA Research Foundation, 1997).

Land Application Requirements

The LAS permits require slow-rate spray irrigation at agronomic rates, no discharge to surface water, ground water monitoring, no exceedance of drinking water maximum contamination levels in ground water, soil monitoring, buffer zones, and quarterly reporting. Systems must be built and operated according to NRCS criteria. In general, operators must follow all NRCS guidelines, such as avoiding waste application to land that is subject to flooding, adjacent to waterbodies, or steeply sloping.

Financial Assurance

The proposed Swine Feeding Rule requires statements of financial assurance from facilities with more than 3,000 AUs to establish evidence of responsibility for closure of waste treatment facilities. Requirements include having a detailed written estimate of the cost of cleaning and closing a swine feeding operation and establishing a closure trust fund, letter of credit, or closure insurance.

7.0 Enforcement Information

No information was found in publicly available sources.

8.0 Voluntary Programs

The Georgia Pollution Prevention Assistance Department allocated a budget to establish the Agricultural Pollution Prevention Program in cooperation with University of Georgia's Biological and Agricultural Engineering Department in 1994. The goal is to encourage the agricultural community to practice voluntary pollution prevention. The program provides technical assistance and information on pollution prevention, including site selection, facility layout, and individual pollution prevention site assessments.

The One Plan initiative was developed as a program-neutral attempt (i.e., it did not specify agency programs or sources of financial or technical assistance) to address agricultural pollution problems in the Upper Oconee Basin. The One Plan initiative was developed with input from a diverse group of stakeholders from the Upper Oconee Basin. This initiative integrates technical assistance with a coordinated site-specific planning process. The initiative is formalized into a single resource management plan that addresses agricultural production and other resource objectives and meets legal and programmatic requirements. Two farms were selected as pilot sites to carry out the planning process (NASDA Newsletter, winter 1997).

9.0 Additional State-Specific Information

Cooperative Extension Service

Within the University of Georgia College of Agricultural and Environmental Sciences Cooperative Extension Service is the Animal and Dairy Science Department. This department offers information through a newsletter and publications on beef cattle, dairy cattle, horses, and swine. More information about the extension service and the department is available at www.ces.uga.edu/ and www.ces.uga.edu/Agriculture/asdsvm/ansci-home.html.

Comprehensive Nutrient Management Plan (CNMP) Certification

The Georgia Swine Feeding Operations Rule (Chapter 391-3-6) requires swine feeding operators to go through a training program. Once the operators have completed the training program, they are certified by the Georgia Department of Agriculture and can prepare CNMPs. The swine permit rule requires a CNMP for facilities with (391-3-6-.20):

- 301 to 1,000 AUs
- Existing, new, or expanding facilities with 1,001 to 3,000 AUs
- Existing, new, and expanding operations with more than 3,000 AUs

All swine facilities with individual permits must implement a CNMP prior to startup. All other livestock operations are regulated under 391-3-6-.15. There is no certification program for other livestock operations. Georgia Department of Agriculture developed and implements the program. Proof of training, certification, continuing education, and CNMPs must be submitted to the Georgia Environmental Protection Division for review (391-3-6-.20).

Swine feeding operations are required to have certified operators for (391-3-6-.20):

- 301 to 1,000 AUs
- Existing operations with 301-1,000 AU
- Existing operation with 1,001-3,000 AUs
- Existing operations with more than 3,000 AUs
- New or expanding operations with more 3,000 AUs prior to startup

The swine operator training and certification program requires swine operators to complete training and continuing education to maintain this certification. Certification training agenda and topics include BMPs, CNMPs, understanding regulations and water quality laws, standards and practices, siting, pollution prevention, monitoring, and record-keeping (391-3-6-.20).

10.0 References

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- USEPA. 1993. *The Report of the EPA/State Feedlot Workgroup*. U.S. Environmental Protection Agency, Office of Wastewater Enforcement and Compliance, Washington, DC.
- USEPA. 1998. *Efforts to Improve Controls on Concentrated Animal Feeding Operations (CAFOs)*. Results of June 1998 Survey of States and Regions compiled by G. Beatty. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Kentucky's CAFO Program

1.0 Background

A CAFO regulation went into effect on August 24, 2000. Four KPDES general permits for swine, poultry, beef, and dairy were issued on October 13, 2000. Kentucky has about 2,700 inventoried AFOs, of which about 250 are believed to be CAFOs.

2.0 Lead Regulatory Agency

Kentucky's NPDES program is administered by the Kentucky Department of Environmental Protection (DEP), Division of Water. The Kentucky Division of Water (KDOW) also permits wastewater systems. More information about DEP and DOW can be found at www.nr.state.ky.us/nrepc/dep/dep2.htm and <http://water.nr.state.ky.us/dow/dwhome.htm>, respectively.

3.0 State Regulations Regarding AFO/CAFOs

Regulation 401 KAR 5:072 on concentrated animal feeding operations became effective on August 24, 2000 (1). This regulation provides information on operation siting and land application requirements for beef, dairy, poultry, and swine operations. Specific language from the regulation can be found at <http://water.nr.state.ky.us/dow/401kar5-072a.pdf>.

The Agriculture Water Quality Act was passed by the Kentucky General Assembly in 1994 to protect surface and ground water resources from agricultural pollution. The Act requires all land owners with 10 or more acres to develop and implement a farm water quality plan based upon guidance from a Statewide Water Quality Plan (KDOW, 1997). Technical and financial assistance may be available during plan development. Landowners must select best management practices (BMPs) from the Statewide Water Quality Plan and implement the BMPs by October, 2001.

The enabling legislation for Wastewater Facility Construction Permits is KRS 224.10-100 and 224.70-110. These statutes can be found at <http://162.114.4.13/KRS/224-10/CHAPTER.HTM>. Construction permit regulations are found in 401 KAR 5:005, which can be found at www.lrc.state.ky.us/kar/401/005/005.htm.

4.0 Types of Permits

NPDES

Kentucky administers the NPDES Program and issues NPDES permits through the Kentucky Discharge Elimination System (KPDES). Operations that are defined as CAFOs pursuant to 401 KAR 5:060 (KPDES application requirements), Section 10 are required to obtain a KPDES Permit. KPDES general permits for swine, poultry, beef, and dairy facilities were issued on October 13, 2000. Specific information and requirements from about these permits can be found at <http://water.nr.state.ky.us/dow/cafo.htm> (KDOW, October 2000a).

Other

Besides the NPDES permit, Kentucky's Division of Water issues two other types of permits that

directly affect animal feeding operations, including Wastewater Facility Construction Permits and Kentucky No Discharge Operational Permits (KNDOP).

5.0 Permit Coverage

Wastewater Facility Construction Permits are required before beginning construction or modification of any sewage system (i.e., any system designed for collecting, pumping, or disposing of waterborne sewage) used for treatment of wastewater.

Kentucky No Discharge Operational Permits are issued to AFOs rather than NPDES permits (USEPA, 1998).

Kentucky Pollution Discharge Elimination System (KPDES) Permits are required for any point source in the State of Kentucky, including CAFOs as defined by 40 CFR 122.23 and Part 122 Appendix B. If facilities with more than 1,000 animal units, are considered CAFOs (KDOW, August 2000a). Animal equivalents for 1,000 animal units are (KDOW, August 2000a):

- 1,000 head of beef cattle
- 700 head of dairy cattle
- 2,500 pigs, each weighing more than 55 pounds
- 100,000 laying hens or broilers

A CAFO operation can be permitted under a KPDES General Permit or a KPDES Individual Permit, depending upon the nature of the operation (KDOW, August 2000a). All operations that have between 1,000 and 1,500 animal units are eligible for coverage under a KPDES General Permit with the following exceptions (KDOW, August 2000a):

- CAFOs that are subject to an existing individual KPDES permit.
- CAFOs greater than 1,500 animal units (They are required to obtain KPDES individual permits.)
- CAFOs that the Director has determined are or will violate water quality standards.
- CAFOs that could discharge into surface water that has been classified as an Exceptional or Outstanding State or National Resource Water (They must obtain an individual KPDES permit.).

All operations that are greater than 1,500 animal units must obtain a KPDES Individual Permit (KDOW, August 2000a).

Separate KPDES general permits for swine, poultry, beef, and dairy facilities were developed. These permits provide detailed information for each facility type, including effluent limitations and monitoring requirements, compliance schedules, reporting of monitoring results, BMP plan requirements, and siting criteria (KDOW, August 2000c). Refer to these permits for more specific information.

6.0 Permit Conditions

Approvals

	# AFOs Permitted	Total # in Database to Date	# CAFOs Permitted
Swine	436	490	0 (estimate 50 - 75)
Dairy	689	1467	0 (estimate < 5)
Beef	197	306	0 (estimate < 5)
Poultry	3	426	0 (estimate 150 - 175)

Note: (1) The number of CAFOs permitted will start to increase with the recent issuance of general permits on October 13, 2000. As such, CAFOs currently permitted under the KNDOP program (see number of AFOs permitted column) will now be permitted under the KPDES program. (2) Some of the operations listed here do not require a permit since they do not have a liquid waste handling system (basis for KNDOP).

Lagoon Design and Specifications

A waste lagoon must have one foot of freeboard, a 2-foot high berm, an emergency spillway, and may be larger than 5 acres in size. Lagoons must be able to contain one year of production solids, 180 days of manure, 12 inches of excess precipitation, and the volume of one 25-year, 24-hour storm event. Permeability cannot exceed 1×10^{-6} centimeters/second and monitoring wells are required. There must be at least 5 feet from bottom of the lagoon to ground water unless an approved synthetic liner is installed. Although there is no financial assurance requirement, closure requirements stipulate that abandoned lagoons be emptied, filled, and revegetated.

Discharge Rules

Kentucky Pollution Discharge Elimination System (KPDES) permits are issued as no discharge permits, except in the event of a 25-year, 24-hour storm event.

Waste Management Plans

Each animal feeding operation must develop a nutrient management plan that describes how waste will benefit surrounding land, when and where it will be applied, and a description of the crop nutrient requirements. CAFOs must develop a Comprehensive Nutrient Management Plan (CNMP) as a part of their KPDES permit requirement.

Separation Distances

A barn or waste lagoon cannot be in a 100-year floodplain or a jurisdictional wetland. Barns or waste lagoons must be 1,500 feet from dwellings not owned by applicant, 150 feet from lakes or rivers, and 1 mile from downstream waters listed as exceptional water or outstanding national resource water. See 401 KAR 5:072 for further siting requirements (KDOW, August 2000c).

Land Application Requirements

When injection is used during land application a minimum distance of 500 feet from dwellings,

150 feet from water wells, and 750 feet from downstream waters listed as exceptional water or outstanding national resource water must be maintained. If waste is being applied to land without injection the minimum distance increases to 1,000 feet from dwellings and 1,500 feet from downstream waters listed as exceptional water or outstanding national resource water. The distance required from wells remains the same when injection is not used (KDOW, August 2000c).

Wastewater Facility Construction Permits

Wastewater Facility Construction Permits require detailed plans that describe discharge points and highlight new construction. An engineering report must be submitted before construction is authorized. After construction, the permit applicant must submit certification by a registered engineer that the facility was constructed according to the approved plans.

7.0 Enforcement Information

Division of Water inspectors make periodic inspections in response to complaints or identified problems (USEPA, 1998). The Commonwealth conducted a statewide survey over the past two years to identify AFOs and CAFOs that exist in Kentucky. That effort has continued as new operations are sited or expanded. The agency will inspect CAFOs in accordance with agreed upon procedures between the state and EPA.

8.0 Voluntary Programs

KDOW is the lead agency for voluntary programs. The Division administers nonpoint source pollution grants.

Funds provided through Section 319 Nonpoint Source Implementation Grants can pay for up to 60 percent of the total cost of pollution control projects (USEPA, 1998).

9.0 Additional State-Specific Information

Cooperative Extension Service

The University of Kentucky and Kentucky State University (land grant universities) are partners in the Kentucky Cooperative Extension, which links counties and the state's land grant universities to help people improve their lives through education that focuses on their issues and needs. The Service focuses on a number of programs, including agriculture and natural resources. KY*A*SYST, a voluntary water quality educational program, was developed to help landowners evaluate their farmstead practices and structures that may impact groundwater quality. KY*A*SYST offers several publications on topics including livestock waste storage and livestock yards management. For more information, refer to www.ca.uky.edu/coopext/index.htm.

Comprehensive Nutrient Management Plan (CNMP) Certification

Kentucky does not have a CNMP preparer certification program. Kentucky issued on October 13, 2000, KPDES General Permits for CAFOs to develop and maintain a site-specific CNMPs that uses the most recent U.S. Department of Agriculture-National Resource Conservation Service guideline for waste management as a basis. The CNMP is not required to be prepared by a certified planner (KDOW 2000a).

Memorandum of Agreement (MOA)

Although no other state agency involvement was identified, the Division of Water has a Memorandum of Agreement with the Natural Resource Conservation Service to coordinate activities as they relate to animal waste permitting (ASIWPCA, 1997).

10.0 References

ASIWPCA. 1997. *CAFO Standards for Pork Production, Survey*. Association of State and Interstate Water Pollution Control Administrators. Washington, DC.

KDOW. n.d. *Concentrated Animal Feeding Operations: 401 KAR 5:072*. n.d. Kentucky Division of Water. <<http://water.nr.state.ky.us/dow/401kar5-072a.pdf>>. Accessed September 2000.

KDOW. 1997. *Other Programs to Address Water Quality Issues*. Kentucky Division of Water. <<http://water.nr.state.ky.us/dow/303other.htm>>. Accessed September 2000.

KDOW. February 2000. *Statement of Emergency 401 KAR 5:072E*. Kentucky Division of Water. <www.lrc.state.ky.us/kar/401/005/072E.htm>. Accessed September 2000.

KDOW. August 2000a. *Animal Feeding Operations (AFO) & Concentrated Animal Feeding Operations (CAFO)*. Kentucky Division of Water. <<http://water.nr.state.ky.us/dow/cafo.htm>>. Accessed September 2000.

KDOW. August 2000b. *Concentrated Animal Feeding Operations*. Kentucky Division of Water. <<http://water.nr.state.ky.us/dow/cafo2.htm>>. Accessed September 2000.

KDOW. August 2000c. *Concentrated Animal Feeding Operations: General KPDES Permits for Concentrated Animal Feeding Operations - Swine, Poultry, Beef, or Dairy Facilities*. Kentucky Division of Water. <<http://water.nr.state.ky.us/dow/cafo2.htm>>. (Available from web pages referenced in 2000a or 2000b). Accessed September 2000.

KDOW. August 2000d. *Welcome to the Kentucky Division of Water*. Kentucky Division of Water. <<http://water.nr.state.ky.us/dow/dwhome.htm>>. Accessed September 2000.

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Mississippi's CAFO Program

1.0 Background

Based on information provided to EPA by USDA, there are 903 AFOs with 300 to 1,000 animal units and 429 AFOs with more than 1,000 animal units in Mississippi. These are primarily in the broiler sector (USDA, 1999; USDA, 2000).

In 1998, agriculture was Mississippi's number one industry, employing more than 30 percent of the state's workforce and valued at \$4.6 billion (USEPA, 1998). Livestock production in Mississippi includes approximately 750,000 beef farms and 60,000 dairy cattle. Farmers also produce approximately 325,000 hogs and 500 million broilers annually (MSU-ES, 1999). The production and sale of meat animals was worth \$275 million to the state in 1996. The growth of swine and poultry facilities in Mississippi is creating concerns for potential impacts to water quality (USEPA, 1998).

2.0 Lead Regulatory Agency

Mississippi Department of Environmental Quality (MDEQ), Office of Pollution Control, Surface Water Division administers the wastewater programs and enforces the NPDES requirements. Information about MDEQ, the Office of Pollution Control, and the Surface Water Division can be found at www.deq.state.ms.us/newweb/homepages.nsf.

3.0 State Regulations Regarding AFOs/CAFOs

State regulations regarding animal feedlots are the Wastewater Regulations for NPDES Permits Amended August 24, 1995. These regulations can be found at [www.deq.state.ms.us/newweb/opchome.nsf/pages/surfaceWaterfiles/\\$file/wwregs.pdf](http://www.deq.state.ms.us/newweb/opchome.nsf/pages/surfaceWaterfiles/$file/wwregs.pdf). Mississippi animal feeding operations are subject to the state's ambient air quality standards, including the odor standard, and to water permit provisions designed to control odor, vectors (pests), and water pollution (Mississippi Commission, n.d.).

In 1998, the Mississippi legislature issued a 2-year moratorium on permits from CAFOs submitted after February 1998.

The Mississippi Commission on Environmental Quality (Commission) is considering the adoption of revised regulations governing the siting, design, construction, and operation of animal feeding operations in Mississippi. These revisions would be made in the Commission's water pollution control regulations (WPC-1), which address permitting regulations for these facilities. Additionally, the Commission is considering a regulatory revision to the air permit regulations, that would exempt existing animal feeding operations from obtaining a separate air permit. Although the draft regulations were to be developed by the end of 1999, the Commission has not yet compiled draft regulatory revisions (Mississippi Commission, n.d.).

4.0 Types of Permits

NPDES

Mississippi has the authority to issue individual and general NPDES permits (Linville, 1997).

Other

State individual and general Animal Waste Permits are issued to smaller facilities (i.e., facilities that fall outside of the federal CAFO definition).

Under Regulation APC-S-2 (amended June 24, 1999), which is administered by the Commission, new and expanding CAFOs that have been issued NPDES permits are required to submit an application for a state air pollution control permit or a multimedia permit. The permit application should be submitted at least 180 days prior to the expiration of the operation's NPDES permit (Mississippi Commission, 1999).

5.0 Permit Coverage

All CAFOs that meet the federal regulatory requirements of 40 CFR Part 122.23 must apply for an NPDES permit. Any facility that causes pollution to waters of the state requires an individual permit or must seek coverage under a general permit.

All animal feedlots, Grade A dairies, poultry operations with 10,000 or more birds, swine operations with 10 or more sows or 50 or more swine, livestock sale barns averaging more than 50 head per day or 350 head per week, or any other confined animal operations that may pollute state waters need a permit (MSU-ES, 1999).

6.0 Permit Conditions

Approvals

To apply for a state animal waste disposal permit or seek coverage under a general permit, all CAFOs that do not meet the federal regulatory requirements of 40 CFR Part 122.23 must submit a waste treatment/disposal design worksheet and request an onsite inspection. On-site inspections and waste treatment/disposal design worksheets are required before permitting to ensure compliance with siting criteria.

Lagoon Design and Specifications

A lagoon should be deep enough to have a liquid depth of at least 6 feet above the sludge layer for normal operation. It must also be designed to hold waste for at least 90 days, to store a 25-year, 24-hour rainfall without overflowing, and to handle future waste from feedlot expansion. Additionally, the top of a lagoon's embankment should be at least 24 inches above the storm storage (freeboard) to offer protection from overflow. Depending on the soil conditions, a lagoon may need a liner (usually 12 inches of compacted clay at the bottom and sides) to prevent ground water seepage. Levees around a lagoon should be at least 8 feet wide at the top and wider if the levee is higher than 12 feet. For mowing and maintenance purposes, outside levee slopes should be constructed at a 3 to 1 ratio and inside levee slopes at a 2.5 to 1 ratio. Animal feedlot owners should consult with their local Soil and Conservation Service, county Extension office, or a professional engineer to meet lagoon design requirements (MSU-ES, 1999).

Discharges

State Animal Waste Permits prohibit discharges except those caused by a 24-hour, 25-year rainfall event.

Waste Management Plans

Animal waste management plans are specific to each individual farm. They are based on the type of livestock operation, existing facilities and equipment, plans for future expansion, cropping systems, the need for disposing of animal carcasses, the land area available for nutrient application, and other factors that might influence how waste should be managed. Waste management plans should include annual soil testing, waste application records on crops and fields, and equipment calibration for accurate, uniform waste application. Finally, waste management plans should include a nutrient analysis to determine the value of waste as fertilizer. For more information, consult the county Extension office or county Soil Conservation Service office (MSU-ES).

Separation Distances

Any facility designed for the treatment and disposal of animal wastes or the housing of confined animal growing operations (except for broiler poultry operations that generate dry litter and do not use a continuous overflow watering system) must be at least 1,000 feet from the nearest unowned occupied dwelling or commercial establishment and at least 300 feet from the adjoining property line (MSU-ES, 1999).

Broiler pullets, broiler breeders, and broilers in a poultry operation that generate dry litter must be 600 feet from the nearest unowned dwelling or commercial establishment and at least 150 feet from the adjoining property line. If buffer zone requirements cannot be met, the Permit Board can consider requests for an exception or variance from the requirements. Land application of dry litter must be at least 25 feet from the nearest adjoining property line and at least 150 feet from the nearest unowned occupied dwelling.

Land Application Requirements

Land application of animal waste (excluding dry litter waste) must be at least 300 feet from the nearest adjoining property line and at least 1,000 feet from the nearest unowned occupied dwelling. Although not yet required by law, land applied waste should be at least 100 feet from a private drinking well and other water sources (MSU-ES, 1999).

7.0 Enforcement Information

No information was found in publicly available sources.

8.0 Voluntary Programs

The Nonpoint Pollution Control Program is a technical outreach program that addresses pollution caused by rainfall runoff from agriculture and other sources. The program focuses on educational and technical exchange. Through this program, several best management practices have been developed for controlling nonpoint source pollution.

9.0 Additional State-Specific Information

Cooperative Extension Service

The Mississippi State University Extension Service (MSU-ES) provides research-based

educational programs and information to improve the economic, social, and cultural well-being of people living in Mississippi. The Extension, which is a cooperating partner with Alcorn State University, provides current research and educational information in all 82 counties of Mississippi. MSU-ES works in a number of areas, including Agriculture and Natural Resources. Within this program area are a number of other programs specifically for beef, dairy, swine, and poultry. Within these specific programs, MSU-ES encourages animal operation owners and operators to use animal waste as fertilizer to help farmers comply with environmental laws, to recover nutrients that would otherwise be lost, and to reduce fertilizer costs (MSU-ES, 1999). More information about MSU-ES can be found at <http://ext.msstate.edu/>.

Comprehensive Nutrient Management Plan (CNMP) Certification

Mississippi does not have a comprehensive nutrient management plan (CNMP) preparer certification program. Mississippi's NPDES Animal Waste Permits are required to document the implementation of Best Management Practices (BMPs). All permitted facilities must have a pollution prevention plan. The pollution prevention plan is not required to be prepared by a certified preparer. An animal waste management plan developed by the U.S. Department of Agriculture Soil Conservation Service can be substituted for the BMP and pollution prevention plan (MDEQ, 2000).

10.0 References

- Linville, I. Environmental Protection Agency, Region 4. Summary of state program information sent to Ruth Much (SAIC), Fall 1997.
- Mississippi Commission on Environmental Quality. 1999. *Permit Regulations for the Construction and/or Operation of Air Emissions Equipment*. <[www.deq.state.ms.us/newweb/opchome.nsf/pages/AirDivfiles/\\$file/APC-S-2_10021999.pdf](http://www.deq.state.ms.us/newweb/opchome.nsf/pages/AirDivfiles/$file/APC-S-2_10021999.pdf)>. Accessed September 2000.
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- MSU-ES. 1999. *Managing Animal Waste Nutrients*. Mississippi State University Extension Service. <<http://ext.msstate.edu/pubs/pub1937.htm>>. Accessed September 2000.
- USDA. 1999. *1997 Census of Agriculture: Geographic Area Series*. U.S. Department of Agricultural Statistics Service, Washington, DC.
- USDA. 2000. Specific queries conducted on the 1997 Census of Agriculture published data. U.S. Department of Agriculture.

USEPA. 1998. *Efforts to Improve Controls on Concentrated Animal Feeding Operations (CAFOs)*. Results of June 1998 Survey of States and Regions compiled by G. Beatty. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

North Carolina's CAFO Program

1.0 Background

In 1996 North Carolina hog farmers produced an estimated 3.5 billion pounds of live hogs valued at \$1.8 billion, making North Carolina second in the nation in hog production. Between 1993 and 1996, hog production in North Carolina increased by 69 percent (Zerring, 1997). Based upon information provided to EPA by USDA, there are 1,667 AFOs with 300 to 1,000 animal units and 1,194 AFOs with more than 1,000 animal units in North Carolina. These are primarily in the broiler and swine sectors (USDA, 1999; USDA, 2000).

This explosive growth of the animal farming industry, particularly hog farming, has led the North Carolina General Assembly to reexamine the effect of intensive animal feeding operations on the state. As such, the Clean Water Responsibility and Environmentally Sound Policy Act (House Bill 515) established a moratorium on the construction or expansion of swine farms within North Carolina for 2 years so that policy makers could determine how to manage intensive feeding operations. The discussion below includes permitting requirements before the moratorium was enacted and permitting requirements resulting from the passage of House Bill 515.

To reduce public health and environmental impacts from swine facilities, the Hunt administration proposed an anaerobic swine lagoon conversion plan in April 1999. This plan calls for converting swine lagoons and sprayfields to more effective treatment systems. Three major components are included: close and clean up inactive lagoons; establish performance standards for new facilities; and convert active facilities to new technologies. Governor Hunt also urged lawmakers to extend the current moratorium until July 2001 (NCDENR, n.d.b). Unfortunately, the conversion plan has produced few results to date. For more information about the framework of the conversion plan, refer to www.enr.state.nc.us/files/hogs/hogplan.htm.

2.0 Lead Regulatory Agency

The North Carolina Division of Water Quality (DWQ), which is housed within the Department of Environment and Natural Resources (DENR), administers the permitting program and operates a mandatory training and certification program for animal waste management system operators (Linville, 1997). More information about DWQ and DENR can be found at <http://h2o.enr.state.nc.us/index.html> and <http://www.enr.state.nc.us/>.

3.0 State Regulations Regarding AFOs/CAFOs

The Clean Water Responsibility and Environmentally Sound Policy Act (House Bill 515) established a moratorium on construction or expansion of swine farms within North Carolina for 2 years. Between March 1, 1997 and March 1, 1999, permits could not be issued to new or expanding swine facilities. This act removed swine farms from being exempt from county zoning ordinances and counties could adopt zoning regulations governing swine farms with waste management systems with a 600,000-pound capacity. The moratorium allowed counties time both to adopt zoning ordinances that can address intensive feeding operations and to complete and review agricultural studies previously authorized by the General Assembly.

Effective March 1, 1999, animal waste management systems cannot be issued a general permit and must be issued an individual permit if they are in a county (1) that has a population of less than 75,000, (2) that has more than \$150 million of expenditures for travel and tourism, and (3)

that is not in the coastal area.

North Carolina Administrative Code Section 15A NCAC 2H.0200 Waste Not Discharged to Surface Waters defines the permitting rules for animal waste management systems. Specific text can be found at http://mapsweb01.sips.state.nc.us/ncoah/ncadministrativ_/title15aenviron_/chapter02enviro_/default.htm.

4.0 Types of Permits

NPDES

Although North Carolina is authorized to issue NPDES permits, it has opted not to issue NPDES permits to CAFOs. Rather, North Carolina has developed its own water quality permitting program (Whittle, 1996).

Other

The North Carolina Division of Environmental Health and Natural Resources (DEHNR) established a general nondischarge permit for swine waste operations and other livestock facilities. Although a general permit has been established, individual permits may still be required if the state determines that a facility poses a significant risk or threat to the environment. All intensive animal feeding operations that meet the threshold described below are subject to North Carolina's nondischarge permitting rules.

5.0 Permit Coverage

In North Carolina, permit coverage is much more stringent than the federal standards that cover intensive feeding operations. Since 1993 intensive animal feeding operations with animal waste management systems using a liquid waste system have been required to obtain a permit if they serve more than: 100 head of cattle, 75 horses, 250 swine, 1,000 sheep, or 30,000 birds. Operations with less than the above thresholds are automatically deemed permitted and are not required to obtain an approved waste management plan (Whittle, 1996). Construction or operation of an animal waste management system without a permit is prohibited in North Carolina.

Swine operations are covered under the Swine Waste Operation General Permit (issued January 14, 1997, and effective until December 31, 2001) if no wastes are discharged to surface waters (except for unintentional discharges from a 25-year, 24-hour storm event) and a Certified Animal Waste Management Plan (CAWMP) is submitted to the Division of Water Quality.

6.0 Permit Conditions

Approvals

New or expanding farms must undergo a site appraisal before beginning development projects (NASDA 1997) and must develop a Certified Animal Waste Management Plan (CAWMP) before stocking animals (NCDENR Swine Waste General Permit).

A Certificate of Coverage (COC), issued under the Swine Waste Operation General Permit, authorizes swine facilities to operate under the conditions set forth in the CAWMP.

Lagoon Design and Specifications

New waste storage structures must have a 180-day capacity, have 1 to 2 feet of freeboard, and be constructed so that they will not be inundated by a 100-year flood.

Seepage is restricted to 1/28 inch per day (NASDA, 1997).

Discharge Rules

No wastes can be discharged to surface waters except the unintentional releases resulting from a 25-year, 24-hour storm event.

Waste Management Plans

North Carolina adopted the Natural Resources Conservation Service's (NRCS) technical guidelines, and all intensive feeding operations subject to state law must comply with these guidelines in developing their animal waste plans.

A Certified Animal Waste Management Plan (CAWMP) is required for all swine facilities issued a Certificate of Coverage under the Swine Waste Operation General Permit and must include these components (Article 21 Chapter 143 of the General Statute §143-215.10C):

- Potential odor sources and site-specific best management practices to minimize those sources.
- Potential insect sources and site-specific best management practices to minimize those sources.
- Provisions for acceptable methods of disposing of dead animals.
- Provisions for best management practices for riparian buffers, particularly along perennial streams.
- Provisions for testing waste products used as nutrient sources as close to the time of land application as practical (at least within 60 days), and at least annual inspections of soils where waste will be applied.
- Provisions regarding waste utilization plans that ensure a balance between nitrogen application rates and nitrogen crop requirements.
- Provision for completing and maintaining records as required by the state.

Specific text from the General Statute Section 143-215.10C can be found at www.ncga.state.nc.us/statutes/statutes%5Fin%5Fhtml/chp1430.html.

Separation Distances

Intensive swine feeding operations must typically be 1,500 feet from any occupied residence; 2,500 feet from schools, churches, and hospitals; and 500 feet from property lines. When spraying fields with animal waste, a minimum separation distance of 75 feet is required from property lines and 500 feet from water wells (NASDA 1997). A swine house or lagoon can be below the separation distance requirements if written approval from the neighboring property owners is recorded with the state. If a permit is required, swine farm operators must inform all adjoining neighbors before construction of or modifications to swine farms.

Land Application Requirements

North Carolina considers land application areas part of the AFO (Phipps, 2000). Land application sites do not require a separate permit if waste is applied at agronomic rates and a vegetative buffer of at least 25 feet is maintained from perennial waters.

Operator Training Requirements

Since 1995, every waste management facility must have a trained and certified operator of animal waste management systems.

7.0 Enforcement Information

General Enforcement Information

Any facility that directly discharges waste from a lagoon (through a pipe or overflow) or fails to control storm water runoff from a storm event less intense than the 25-year, 24-hour storm is in violation of regulation 15A NCAC 2H.0122-.0123. Although grace periods allow operators time to control discharges and avoid penalties, particularly for first time offenders, fines can be assessed immediately for willful discharges or violations of water quality standards (NCDEM, 1993).

Civil and/or criminal penalties of up to \$10,000 per day and/or imprisonment can be assessed for violations of water quality standards and illegal discharges. Fines for first violations of willful discharges do not exceed \$50,000 unless water quality standards are violated (NCDEM, 1993).

General Inspection Information

New and expanded facilities require an onsite inspection to confirm that animal waste treatment systems have been constructed to meet the appropriate standards (North Carolina Administrative Code Section: 15A NCAC 2H.0200). Also, the North Carolina Department of Environmental Management (NCDEM) inspects animal waste facilities in response to citizen complaints or obvious water quality problems (Agena 1994; NCDEM 1993). Two regular inspections are conducted each year. One is a compliance inspection by the Division of Water Quality and the other is a technical assistance inspection by the Division of Soil and Water Conservation (USEPA, 1998; I. Linville, 1997; Thompson 1997).

8.0 Voluntary Programs

The Department of Environmental Health and Natural Resources, Division of Soil and Water

Conservation is the lead agency for voluntary programs in North Carolina. Administered by the North Carolina Division of Soil and Water Conservation, North Carolina's Agriculture Cost Share Program for Nonpoint Source Pollution Control was established in 1989 as a statewide program to protect water quality. The program pays a farmer up to 75 percent of the average cost of implementing approved BMPs and provides technical assistance to landowners. Local Soil and Water Conservation District Boards identify treatment areas, allocate resources, sign contract, and provide technical assistance. Participation by the local Soil and Water Conservation Districts is considered crucial to the success of the program.

9.0 Additional-State Specific Information

Cooperative Extension Service

The North Carolina State University Cooperative Extension (www.ces.ncsu.edu/) has a number of programs and departments to educate the public, including the Animal Science Department, which specifically addresses waste management for dairy and swine operations.

Comprehensive Nutrient Management Plan (CNMP) Certification

North Carolina does not have a CNMP preparer certification program. Animal Waste Management Systems Plans must be certified by a technical specialist pursuant to the rules regulated by the Soil and Water Conservation Commission, which administers the regulation and designates technical specialists. A technical specialist is only allowed to certify BMPs (which make up each animal waste management plan) within his area of expertise. The designation categories are the following (CES, 2000):

- Collection, storage, and/or treatment
- Waste utilization plan
- Waste utilization plan/wettable acres
- Runoff controls
- Irrigation equipment
- Irrigation equipment/wettable acres

The North Carolina Administrative Code Title 15, Chapter 2H, Section 200 requires a certified operator for animal waste management systems with a liquid animal waste management system that confine more than 250 swine, 100 confined cattle, 75 horses, 1,000 sheep, or 30,000 poultry (North Carolina State University of Soil Science Extension, 2000). The Water Pollution Control System Operators Certification Commission developed a program to certify operators. The Commission has 11 members: 2 from the agriculture industry who are appointed by the Commissioner of Agriculture, and the remaining 9 are appointed by the Secretary of Environment, Health, and Natural Resources. The Commission is administered under DENR (North Carolina State University of Soil Science Extension, 2000).

There are separate operator training and certification programs for type A and type B animal waste management systems. Type A systems rely on anaerobic lagoon and soil/plant systems for treatment of low fiber animal waste from swine or poultry operations. Type B systems rely on soil/plant systems for the treatment of high fiber animal waste from cattle, horses, and sheep (North Carolina State University of Soil Science Extension, 2000).

The Water Pollution Control Systems Operator Certification Program requires training in the

appropriate type of waste management system (Type A or Type B) and the passing of an examination. To maintain certification, an operator must pay an annual renewal fee and complete 6 hours of continuing education every 3 years (North Carolina State University of Soil Science Extension, 2000).

Other Information

A Violation Points System applicable to permits for animal waste management systems for swine farms is being developed. Violations that cause the greatest harm will receive the most points and the number of points added to an operator's permit will be directly related to negligence or willfulness. The number of points that will result in revocation of a permit has not yet been decided.

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South Carolina's Animal Waste Management Program

1.0 Background

Before 1967 the South Carolina Department of Health and Environmental Control (DHEC) encouraged farmers to voluntarily comply with the South Carolina Pollution Control Act (PCA). DHEC issued permits in the 1960s and between 1967 and 1970 the number of permitted facilities increased to 100. These numbers grew to 800 permitted facilities in the 1970s and 1,000 in the 1980s. Still, until 1998 there were no specific formal regulations for agricultural facilities, so the Department relied on an evolving set of permitting guidelines. The regulations that became effective used many of the criteria from the 1996 Confined Swine Feeding Operations Act (DHEC, 2000c).

Today there are 1,300 permitted agricultural facilities in South Carolina. The types of farms have changed in recent years from small family farms to an increasing number of larger animal-growing operations. Integrators are now a common part of the South Carolina CAFO universe (DHEC, 2000c).

Based on information provided to EPA by USDA, there are 295 AFOs with from 300 to 1,000 animal units and 233 AFOs with more than 1,000 animal units in South Carolina. These are primarily in the broiler sector (USDA, 1999; USDA, 2000).

2.0 Lead Regulatory Agency

The South Carolina Department of Health and Environmental Control (DHEC) is given authority to promulgate environmental regulations, including regulations for South Carolina's CAFOs, under the South Carolina Pollution Control Act (PCA). DHEC information can be found at www.state.sc.us/dhec/ and the specific language of the PCA can be found at www.lpittr.state.sc.us/code/t48c001.htm.

3.0 State Regulations Regarding AFOs/CAFOs

The PCA is the basis for South Carolina's water pollution control and water quality protection programs. The law allows DHEC to use a range of activities such as permitting, inspections, compliance monitoring, enforcement, and public education to conduct the water pollution control program. Section 48-1-100 of the PCA requires permits for handling, storage, treatment, and disposal of animal waste (defined as sewage) and dead animals ("other waste"). Section 48-1-110 of the PCA requires submission and approval of plans, including waste management plans, before any disposal system can be built, operated, or modified (DHEC, 2000e).

South Carolina has been regulating animal operations since 1956 (Gray, 1995). Regulations related to animals, livestock, and poultry can be found in Title 47 of the Code of Laws of South Carolina, 1976. The title was amended in 1996 to include Chapter 20, which pertains specifically to the regulation of confined swine feeding operations, including provisions for regulation of odors and other "nuisances." Specific language of Title 47, Chapter 20, can be found at www.lpittr.state.sc.us/code/t47c020.htm.

In 1996 the South Carolina Confined Swine Feeding Operations Act established criteria for "mega" swine facilities that regulate these large swine facilities because of their potential to cause significant environmental harm if not properly regulated. Specific language of the Act can

be found at www.state.sc.us/dhec/eqc/water/html/aglaw&r.html. On June 26, 1998, Regulation 61-43 became effective, covering all animal facilities (DHEC, 1999e). Prior to these regulations, DHEC used guidelines. These regulations are based on the Confined Swine Feeding Operation Act. Part 100 addresses swine facilities, Part 200 addresses all other animal facilities, and Part 300 addresses innovative and alternative technology and applies to facilities regulated by Parts 100 and 200 (DHEC, 2000e).

Regulation 61-82, Proper Closeout of Wastewater Treatment Facilities, does not give specific methods for closure but does provide information relating to lagoon closures, and it requires proper disposal of all water materials. It applies to any facility that has been closed 5 or more years. Reports must be submitted to DHEC for approval (DHEC, 2000e).

4.0 Types of Permits

NPDES

South Carolina is authorized to administer the federal NPDES program and may issue general and individual NPDES permits (Linville, 1997). The state's NPDES regulations mirror the federal regulations. However, South Carolina does not issue NPDES permits in favor of "no-discharge" state permits.

Other

South Carolina has issued a general permit and individual state permits to CAFO operators with the requirement that no discharge is allowed. The state permits cover operations with waste treatment systems serving 1,000 animal units or more. Smaller operations are issued the same permit as larger operations, but the permit requirements may be different. South Carolina requires 5-year renewable Permits to Construct and Permits to Operate (Gray, 1995).

South Carolina uses a three-tier approach to permitting new facilities under Regulation 61-43:

- **Tier One**—covers facilities with a capacity of 10,000 pounds or less of normal production animal live weight. They do not need a permit unless specifically required on a case-by-case basis by DHEC.
- **Tier Two**—covers facilities with 10,000 to 29,999 pounds of normal production animal live weight. They are not required to get a permit unless specifically required on a case-by-case basis by DHEC
- **Tier Three**—covers facilities with 30,000 pounds or more of animals live weight. These facilities are required to obtain permits (DHEC, 2000b).

Existing facilities are deemed permitted and do not have to apply for a permit unless they have been closed for 5 or more years. Deemed permitted facilities do not have to apply for a permit unless they are expanding or adding a waste utilization area, a composter, a stacking shed, and the like. If a facility has been closed between 2 and 5 years, DHEC may review and modify the permit if necessary. Expansion of a facility with a lagoon is not defined by the increase in permitted animals, but rather by expansion of the lagoon itself to accommodate more animals. For facilities with dry manure handling, expansion means an increase in the number of permitted animals (DHEC, 2000b).

5.0 Permit Coverage

Although South Carolina has chosen not to cover any of its facilities by federal NPDES permits, the state uses the federal definition of a CAFO operation as a mechanism for permitting. Smaller operations that discharge and are potentially polluters of state waters are designated CAFOs on a case-by-case basis. The minimum requirements of the NPDES program are used as a basis for issuing state permits to facilities. South Carolina has historically treated and regulated waste lagoons as treatment plants (Gray, 1995).

6.0 Permit Conditions

Approvals

A letter of consent for new lagoons is required from any property owner whose property lines are less than 1,000 feet from a proposed site.

Lagoon Design and Specifications

Waste management systems must be built in accordance with Standards 312, 359, and 633 of the Soil Conservation Service (SCS) Field Office Technical Guide. Standard 312 discusses the purpose and content of the waste management system, and Standard 633 describes waste utilization or nutrient management. Some requirements for design, construction, and operation of waste treatment lagoons specified in Standard 359 are (Gray, 1995):

- Lagoons must be located on slowly permeable soils, not gravel and shallow fractured soils.
- Synthetic or soil-packed liners must be used if a lagoon is not self-sealing.
- Lagoons must provide storage for the 25-year, 24-hour storm.
- Specific guidelines for the geographic region must be followed.

Discharge Rules

Discharges are prohibited except in the case of the 25-year, 24-hour storm.

Waste Management Plans

Waste management plans are required for all facilities that confine animals with more than 10,000 pounds and less than 30,000 pounds of live animal weight (ranged animal facilities do not require a waste management plan). Waste management plans must be submitted to the DHEC for review; an NPDES permit is not required. Facilities with 30,000 pounds live animal weight or more must submit and implement a waste management plan and have an NPDES permit.

Waste management plans must comply with Regulation 61-43. As of 1998, waste management plans have become more sophisticated and address odor control, vector control, and other nuisances; protection of ground water and surface waters; and aesthetic considerations (DHEC, 2000b).

Tier One facilities must develop and implement a waste management plan, but they do not have

to submit it to DHEC. Tier Two and Tier Three facilities must develop and implement a waste management plan and must submit the plan to DHEC for approval before the facility can begin operations (DHEC, 2000b).

The waste management plan provides the details of handling, storage, treatment, and disposal of animal waste and dead animals generated at the facility. The plan includes information on agronomic application of manure and identifies available land for land application. A cropping plan (crop schedule) is also included. In addition, an odor abatement plan, a vector abatement plan, a soil monitoring plan, and an emergency plan are included as part of the waste management plan (DHEC, 2000b).

A South Carolina registered professional engineer or the Natural Resources Conservation Service (NRCS) must prepare waste management plans for proposed facilities. After the facility has been constructed, but before operations begin, the preparer of the waste management plan must certify that the facility has been built according to the plan (DHEC, 2000b).

Separation Distances

All siting requirements for CAFOs must be measured from property lines (South Carolina General Assembly Bill 3446). After June 30, 1996, specific requirements (including the 1996 Confined Swine Feeding Operations Act/Swine Bill) were placed on CAFOs based on the normal production of live animal weight at a facility at one time. The Bureau of Water Agricultural Program (DHEC, 2000d) published these setback requirements (with setback specifically covered by the 1996 Swine Bill):

Barns, Stables, Pens, or Growing Houses (not including lagoons, storage pond, or waste utilization areas)

1. Wells
 - a. Human drinking water wells—200 feet (excluding that of the applicants, which must be 50 feet)
 - b. Animal drinking water wells—50 feet (per Reg. 61-71)
2. Ditches
 - a. That drain to waters of the state excluding ephemeral and intermittent streams—100 feet (Swine Bill)
 - b. That drain to ephemeral or intermittent streams—50 feet
3. Property lines
 - a. Large facilities (420,000 or more pounds of capacity)—1,000 feet (may be reduced by written waiver with the adjoining property owner after recording in the county's Office of Register of Mesne Conveyance)(Swine Bill)
 - b. Small facilities with a capacity of
 - i. 0 to 210,000 pounds—200 feet
 - ii. 210,000 to 420,000 pounds—400 feetNote: Distances may be reduced with permission from the adjoining property owner.
4. Waters of the state including ephemeral and intermittent streams—100 feet

Lagoons or Waste Storage Ponds

1. Wells
 - a. Human drinking water wells—500 feet (Swine Bill)
 - b. Animal drinking water wells—100 feet (per Reg. 61-71)
2. Ditches
 - a. That drain to waters of the state excluding ephemeral and intermittent streams—100 feet (Swine Bill)
 - b. That drain to ephemeral or intermittent streams—50 feet
3. Property lines
 - a. Large facilities (420,000 or more pounds of capacity) with a capacity of
 - i. 420,000 to 840,000 pounds—1,000 feet (Swine Bill)
 - ii. 840,000 to 1,260,000 pounds—1,250 feet (Swine Bill)
 - iii. 1,260,000 to 1,680,000 pounds—1,500 feet (Swine Bill)
 - iv. more than 1,680,000 pounds—1,750 feet (Swine Bill)Note: All distances may be reduced by written waiver with the adjoining property owner after recording in the county's Office of Register of Mesne Conveyance. (Swine Bill)
 - b. Small facilities with a capacity of
 - i. 0 to 210,000 pounds—300 feet
 - ii. 210,000 to 420,000 pounds—600 feetNote: All distances may be reduced with permission from the adjoining property owner.
4. Waters of the state
 - a. Waters of the state excluding ephemeral and intermittent streams—1,320 feet (may be reduced to 500 feet if concrete is used). However, if the waters are classified as Outstanding Resource Waters (ORW) or Shellfish Harvesting Waters or the waters are the critical habitat of endangered species, then the minimum distance is 2,640 feet (may be reduced to 1,000 feet if concrete is used). In both cases, in the event of a lagoon failure, if a failed safe design is utilized to prevent swine waste from entering waters of the state (not including ephemeral and intermittent streams), the distances can be reduced to 500 feet. (Swine Bill)
 - b. Ephemeral and intermittent streams—100 feet

Waste Utilization Areas

1. Wells
 - a. Human drinking water wells—200 feet (Swine Bill)
 - b. Animal drinking water wells—100 feet (per Reg. 61-71)
2. Ditches
 - a. That drain to waters of the state excluding ephemeral and intermittent streams—100 feet (Swine Bill)
 - b. That drain to ephemeral or intermittent streams—50 feet
3. Property lines
 - a. If the residence is within 1,000 feet of the property line—200 feet (may be waived to 100 feet by consent of the property owner) (Swine Bill)
 - b. If no residence is within 1,000 feet of the property line—none

4. Waters of the state
 - a. Waters of the state excluding ephemeral and intermittent streams—100 feet (regardless of method of application) (Swine Bill)
 - b. Ephemeral and intermittent streams and the method of application is
 - i. spray irrigation—100 feet
 - ii. incorporation—75 feet (can be reduced to 50 feet if incorporated within 24 hours)
 - iii. injection—50 feet

The minimum distance between a lagoon and waters of the state is 1,320 feet (1/4 mile). If the waters are designated ORW, Critical Habitat Waters, or Shellfish Harvesting Waters, the minimum distance is 2,640 feet (1/2 mile). A minimum 100-foot vegetative buffer of plants and trees is required. If a certified engineer designs a management plan to control discharge from a failed lagoon and certifies that the plan has been implemented, then the distance is 500 feet. If the lagoon is made out of concrete, the distance is 500 feet unless the waters have any of the special designations listed above, which increases the distance to 1,000 feet. The minimum distance between a lagoon and a ditch or swale that drains to state waters is 1,000 feet. No lagoon can be located in a 100-year floodplain (South Carolina Code of Laws, Title 47).

New legislation added additional siting requirements (USEPA, 1998).

Land Application Requirements

Application rates must only apply to animal feeding operations with a capacity of more than 420,000 pounds of normal production animal live weight at any one time (South Carolina Code of Laws, Title 47).

Other Requirements

An applicant proposing to construct a new or expand an existing animal growing operation must notify nearby property owners of the intent to construct a new agricultural facility or expand an existing agricultural facility. DHEC gives public notices of all permit issuances by placing the decision in a newspaper of general circulation in the area of the facility.

7.0 Enforcement Conditions

When a facility begins operations, it is added to the list of wastewater facilities that are inspected by the EQC district offices under the oversight of the Bureau of Water's Compliance Division. Each of the 12 district offices must perform agricultural inspections to ensure that facilities are in compliance with the requirements of their permit and agricultural waste management plan. District offices also investigate complaints and are encouraged to work with farmers to resolve any problems at agricultural facilities. The Compliance Assurance Division provides technical assistance to farmers, which is believed to increase the number of facilities that remain in compliance with their permits (DHEC, 2000f).

Agricultural facility inspections are handled in the same manner as other inspections on wastewater treatment facilities. If initial inspections reveal problems, follow-up inspections are performed. Upon completion of the inspection, farmers are provided with a copy of the inspection reports. The Department performs about 1,500 agricultural inspections a year (DHEC, 2000f).

The SC PCA gives DHEC authority to issue orders and administer penalties for violations of the law or permits issued under the authority of the law. Civil penalties can be up to \$10,000 per day per violation, while criminal penalties can be up to \$25,000 per day per violation and/or imprisonment up to 5 years (DHEC, 2000f).

The Bureau of Water's, *South Carolina Animal Feeding Operations Compliance and Enforcement Inspection Strategy* provides an overview of the agricultural inspection and compliance programs. To request a copy, e-mail Anthony James at JAMESMA@columb32.dhec.state.sc.us (DHEC, 2000f).

South Carolina has around 1,133 active permitted agricultural facilities. Of these, there are 267 swine facilities, 132 dairy and cattle facilities, 500 poultry facilities, 189 turkey facilities, and 45 facilities for various types of animal and agricultural activities (DHEC, 2000a). Maps of these permitted agricultural facilities can be found at www.state.sc.us/dhec/eqc/water/html/agpage.html.

8.0 Voluntary Programs

South Carolina's AFO program is implemented with technical assistance by the U.S. Department of Agriculture's Natural Resources Conservation Service. State Home*A*Syst (Home Assessment System) and Farm*A*Syst (Farm Assessment System) are voluntary programs that are offered nationwide. Poultry producers may get help from the Poultry Water Quality Consortium, while the Dairy Network Partnership assists dairy producers. The Manure Management Demonstration Project emphasizes record-keeping, milking center waste disposal, and manure management. Farmers are also encouraged to seek help from the national Agriculture Compliance Assistance Center.

9.0 Additional State-Specific Information

Cooperative Extension Service

Clemson University Extension Service provides information to the public about farming and agriculture, and encourages farmers to take advantage of voluntary programs offered by the private sector. For example, John Deere sponsors a program called Managing Non-Point Source Pollution in Agriculture. More information about the extension service and its programs can be found at <http://virtual.clemson.edu/groups/extension/>.

Comprehensive Nutrient Management Plan (CNMP) Certification

South Carolina does not have a CNMP preparer certification program. A farmer must have a South Carolina-registered professional engineer or the U.S. Department of Agriculture-National Resources Conservation Service prepare a waste management plan for the facility. DHEC administers the NPDES program.

The South Carolina Confined Swine Feeding Operation Act (Regulation 61-43) requires swine farmers with NPDES permits to enroll in a manure manager's training program. This training program was developed and implemented in 1998 by Clemson University, in conjunction with the South Carolina Department of Agriculture. This program was mandated by the South Carolina Confined Swine Feeding Operations Act of 1996 for owners of swine facilities. Training topics include understanding relevant regulations, issues, standards, principles, and

practices regarding siting and management of an animal feeding operation and land application of animal waste; testing for toxic metals, organic materials, and other elements; using antibiotics; implementing emergency procedures; and using spill prevention protocols, which include testing and inspection of dikes (DHEC, 2000a).

Operators of swine animal feeding operations and waste utilization areas must be certified in the operation of animal waste management within 1 year after they receive the NPDES permit (DHEC, 2000a).

The education program developed by Clemson University was designed for all types of animal operations. Regulation only requires operators of swine feeding operations to enroll in the course; however, future changes in the agricultural regulations probably will make this certification mandatory for all farmers operating animal growing operations (DHEC, 2000a).

Other Information

To deal with the growth of human and animal populations in South Carolina, DHEC encourages innovative and alternative technologies for animal waste management. The 1998 regulations specifically address innovative and alternative technologies. DHEC anticipates receiving more proposals that include such technologies (DHEC, 2000c).

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Tennessee's CAFO Program

1.0 Background

Tennessee's strategy for CAFOs establishes a two-tier permit system based on the size of the operation and the type of waste management system in place. The permit system is designed to prevent CAFO's impacts on water quality. Tennessee enacted this strategy, even though the state has few CAFOs, to prevent the problems seen in other states such as North Carolina (TDEC, 2000c).

Based upon information provided to EPA by USDA, there are 323 AFOs with 300 to 1,000 animal units and 111 AFOs with more than 1,000 animal units in Tennessee. These are primarily in the broiler sector (USDA, 1999; USDA, 2000).

2.0 Lead Regulatory Agency

CAFO permits are issued by the Tennessee Department of Environment and Conservation (TDEC) Division of Water Pollution Control (WPC). TDEC and WPC information can be found at www.state.tn.us/environment/ and www.state.tn.us/environment/wpc/index.html, respectively.

3.0 State Regulations Regarding AFOs/CAFOs

The Tennessee CAFO General Permit is implemented under the authority of the Tennessee Water Quality Control Act of 1977, Chapter 1200-4-10 of the Rules of the TDEC, and the NPDES program delegation from the U.S. Environmental Protection Agency (TDEC, 1999b).

4.0 Types of Permits

NPDES

Tennessee is authorized to administer the NPDES permit program. The Class II Concentrated Animal Feeding Operations General Permit, which was implemented under the authority of the Tennessee Water Quality Control Act, became effective on May 1, 1999, and will expire on April 30, 2004. The Class II permit is for medium-sized operations and poultry farms that use dry manure waste systems. The issuance of Class II permits also depends on the existing agricultural impacts on streams. TDEC began issuing Class I Concentrated Animal Feeding Operations Individual Permits for the largest livestock operations with more than 1,000 animal units (AUs). Operators had until May 1, 2001, to comply with the new standards (TDEC, 1999b).

Other

There are no state standards regarding site appraisal and no state standards regarding separation distance, liner material, or seepage (NASDA, 1997).

5.0 Permit Coverage

Tennessee generally follows the federal definition of CAFOs. Under the Tennessee strategy, individual permits are used for operations meeting the NPDES threshold of 1,000 AUs, and a general permit is used for operations with 301 to 1,000 AUs (TDEC, 1999b). The Class II general permit applies to all new animal feeding operations with 301 to 1,000 AUs and the

existing operations with a single type of animal located in the watersheds of impacted stream segments resulting from livestock operations (specifically identified in Tennessee's 303(d) list of impaired waters). The animal types include:

Animal Type	Class I	Class II	
	Liquid Manure Management	Liquid Manure Management	Dry Manure Management
Poultry (broilers and/or laying hens)	≥ 30,001	9,000 – 30,000 birds	≥ 50,000 birds (existing operations), ≥ 20,000 (new operations)
Swine	≥ 2,501 over 55 pounds each	751 – 2,500 over 55 pounds each	751 – 2,500 over 55 pounds each
Dairy (mature animals)	≥ 701	201 – 700	20 – 700
Slaughter or feeder cattle	≥ 1,001	301 – 1,000	301 – 1,000
Other commercial species	n/a	See 40 CFR Part 122, Appendix B	See 40 CFR Part 122, Appendix B

Source: TDEC, 1999b.

When medium-sized operations confine more than one kind of animal and are located in 303(d) listed waters identified as impacted because of livestock operations, they must use the animal unit conversion factor in 40 CFR Part 122, Appendix B, to determine whether they qualify for the Class II general permit. To qualify for the permit, the total AUs for the combination of animals must be 301 to 1,000 AUs (TDEC, 1999b).

TDEC may designate any AFO with fewer than 301 animals as a Class II CAFO if the department determines that the operation contributes pollution to Tennessee waters. Also, if the operator requests it, TDEC can designate a smaller AFO as a Class II CAFO (TDEC, 1999b).

6.0 Permit Conditions

Approvals

There are no required approvals (NASDA, 1997).

Lagoon Design and Specifications

The general permit requires that liquid animal waste treatment and/or storage systems or expansions to existing facilities must be designed by a registered professional engineer licensed to practice in Tennessee by the State Board of Agricultural and Engineering Examiners, or by a person with engineering approval authority from the Natural Resources Conservation Service (NRCS). Dry manure management systems that exceed 5 days of unprotected exposure of waste will be considered liquid waste management systems and may require an individual NPDES permit. Liquid waste handling facilities must be designed, constructed, and operated to contain all process-generated waste plus the runoff from a 25-year, 24-hour rainfall event (TDEC, 1999b).

Discharge Rules

There are no specific state standards other than no discharge is allowed except during a 25-year, 24-hour storm event (NASDA, 1997). If there is a discharge after a 25-year, 24-hour storm or an unpermitted discharge, then samples must be collected and analyzed for fecal coliform, 5-day biological oxygen demand (BOD₅), total suspended solids (TSS), total nitrogen, total phosphorus, copper, zinc, and any other pesticides or pollutants the operator believes could be present (TDEC, 1999b).

Waste Management Plans

Nutrient management plans (NMPs) are required as a condition of the permits. The NMP must contain the following (TDEC, 1999b):

- Aerial photographs and maps
- Current and planned plant production sequence and rotation
- Identification of non-application buffer strips around the application site(s)
- Soil test results for the phosphorus and potassium for application sites
- Nutrient budget (N, P, K) based on realistic yields and all sources
- Calculated agronomic rate
- Proposed application method and schedule

Separation Distances

For new operations, the general permit requires that setbacks be consistent with guidelines found in the NRCS Field Office Technical Guide (TDEC, 1999b). There are no state standards on separation distances (NASDA, 1997).

Land Application Requirements

Land application must be in accordance with the approved NMP, the Clean Water Act (CWA), and its implementing regulations (TDEC, 1999b). There are no state standards (NASDA, 1997).

Other Requirements

Under non-emergency conditions, CAFOs should dispose of dead animals by composting, rendering, incineration, disposal in a Class I permitted landfill, or burial on-site in accordance with the approved NMP (TDEC, 1999b).

Records must be kept onsite for a minimum of 2 years (TDEC, 1999b).

7.0 Enforcement Information

The Tennessee AFO Strategy does include annual inspections of large (Class I) facilities with individual permits and inspection of other facilities based on complaints and availability of staff.

Number of CAFO Facilities

As of July 2000, WPC issued permits to 39 Class II CAFOs. Permits for five additional facilities and eight Class I operations were to be issued by the end of July 2000 (TDEC, 2000c).

8.0 Voluntary Programs

Education, training, and technical assistance programs are available through NRCS, Tennessee Department of Agriculture (TDA), and University of Tennessee (UT) Extension (NASDA, 1997). UT Extension and NRCS will be available to assist producers with the new permitting requirements. Coordination between TDEC and TDA is via a Memorandum of Understanding.

TDA reviews and approves all nutrient management plans and waste handling systems required under the general Class II permit (TDEC, 1999b). All notices of intent (NOIs) for the general permit must be submitted to TDA. The state anticipates that the CWA Section 319 NPS program will become involved in the regulation of animal feeding operations.

Cost-share funding is offered as an incentive for good agricultural practices (NASDA, 1997). TDA offers state cost-share programs to point source and nuisance problems (USEPA, 1998).

9.0 Additional State-Specific Information

Cooperative Extension Service

The University of Tennessee Agricultural Extension Service provides information to the public about a number of topics, including agriculture and animal science. Specific information about manure management and water quality in relation to dairy, swine, poultry, and beef is provided through the Animal Science Department. Operators may contact the Beef-Sheep-Horse Extension, Dairy Extension, Poultry Extension, or the Swine Extension concerning animal-related issues including waste management. More information about the extension service can be found at www.utextension.utk.edu/.

Comprehensive Nutrient Management Plan (CNMP) Certification

Tennessee does not have a CNMP preparer certification program. Tennessee does, however, require Class I CAFO permits for liquid manure management systems to have a waste management system plan prepared by a licensed professional engineer or a person with USDA-NRCS approval authority. The waste management plan must be approved by TDA before submittal to TDEC. Nutrient management plans are also required for Class I CAFO permits. These plans must be consistent with the USDA-NRCS Field Office Technical Guide and be approved by TDA (TDEC, 1998).

Other Information

Some communities in Tennessee have taken action to prevent CAFOs from locating near them because of concerns about odor and large amounts of animal waste. The Rutherford County Commission voted to alter their zoning regulations to require a conditional use permit for CAFOs. Although no CAFOs have expressed interest in locating in Rutherford County, local officials wanted to be prepared should such a situation arise (TDEC, 2000c).

10.0 References

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